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"universalisation has to be from the village upwards"

Primary School Teachers' Innovations: First Yearbook

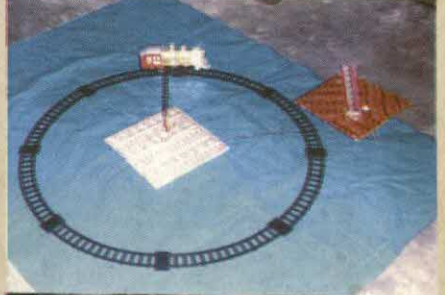


Editors:
Vijaya Sherry Chand
Geeta Amin-Choudhury
Samir Joshi

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Ravi J. Matthai Centre for Educational Innovation
Indian Institute of Management, Ahmedabad
2005





A 'winning' class marching to the classroom after assembly
(Ananta Baodhankar)



Bal Vadya Vrund practising
(Rahul Londhe)



Flag Hoisting: Dalit Woman Arpanch exercising her rights with the support of a teacher (Jayesh Patel)



Malayalam Language book for deaf children
(Laizamma Korah)



Science laboratory (Shantilal Patel)



TLM exhibited during SRTT conference



Race: 15th August celebration
(Harshad Joshi)

Cover Illustrations:

(Left)

Enrolment drive (Jayesh Patel)

(Right, from top to bottom)

- 1) Children busy preparing booklets (Rahul Londhe)
- 2) TLMs made with children's help (Sharmishtha Patel)
- 3) Children demonstrating science experiments (Anavar Vhora)
- 4) Geometrical aquarium: TLM prepared to explain angles (Raman Patel)
- 5) Class monitors being given *Upasthiti Dhvaj* for highest attendance (Ananta Baodhankar)
- 6) Toy train: a part of multi-purpose TLM (K. Ganesh)
- 7) Girls practising *kabaddi* for a state level competition (Jayesh Patel)

“universalisation has to be from the village upwards”

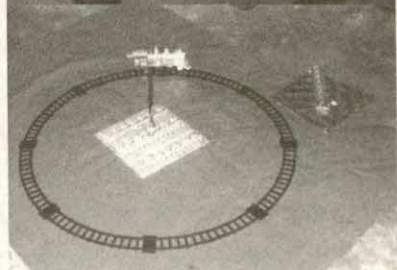
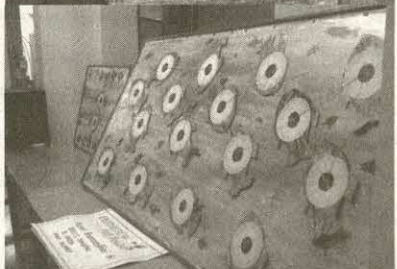
Primary School Teachers' Innovations: First Yearbook



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Contents

I	Introduction	i-ii
II	The Teachers' Addresses	iii-vi
III	The Teachers' Work	1-131
IV	Appendices	132-137
V	Glossary	138-139
VI	Abbreviations	140

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Introduction

This First Yearbook of innovations by primary school teachers is mainly addressed to teachers working in state-run and funded schools operating in difficult environments. It is the outcome of a project that is based on a practical understanding of teacher development: build on the strengths that exist within, build on the experiences of those who have performed well in spite of many constraints, using their own creativity and resources. The 'practices' of the 58 teachers reported here are responses to very context-specific socio-economic and classroom situations. However, the constraints faced by these teachers may be similar to those of a wide cross-section of the primary school teaching community. These 58 teachers have been selected from a wider pool of innovative teachers, whose work constitutes an 'educational bank' which can play the role of a 'clearing-house for educational innovations'. This document is the first step in that direction. It is the result of a process of scouting out, and validating, educational innovations evolved by outstanding primary teachers in their own specific contexts. Other teachers, teacher training institutions and educational policy makers, may also find this document interesting; the alternative solution-augmenting teacher development approach which underpins the work reported here can be incorporated into the teacher training curriculum. Learning directly from those who have realized their educational goals in contexts that are not well funded, do not reveal high parental support for education, and are influenced strongly by local cultural environments, is one way of promoting self-driven and lifelong learning-based approaches to teacher development.

The process of identifying such teachers is a crucial first step. Various methods like a public announcement through teacher organizations and education departments, nominations by local voluntary organizations associated with education, and internal newsletters of teachers or educational institutions, have been used in making this

I collection. The criteria specified were the following: the innovation should have been developed (or modified after borrowing) in response to a specific problem; the work should have been monitored; and results (in line with the objectives that the teacher had determined for himself or herself) should have been achieved. The teachers nominated were then asked to describe their work following broad guidelines which included the inspiration for the idea, the process of developing the work, evolving criteria for monitoring the intervention, modifications made over time, and the spread effect of the work. These responses were screened and additional information gathered wherever there were obvious gaps in the data. The second step of screening the work was equally critical, and time consuming. The outcomes were studied in the context of the constraints the teacher had faced, the innovativeness of the work, and their impact on schooling and on the community. An expert committee which also included a number of outstanding teachers undertook the screening. The final stage of validation included visits to the teachers' sites, and very importantly, meetings of selected teachers, in which the work was presented and the participants could challenge the teachers and ask questions. Some educational experts also attended these validation workshops. The validation process followed the procedure of case study recording and triangulation with local stakeholder groups. The procedures followed and the rating criteria used, are described in Appendix A. Finally, based on overall assessment, 58 teachers were selected to attend the First Conference, held in December 2004 at the Gujarat Council of Educational Research and Training, Gandhinagar, Gujarat. (A report on the conference is presented in Appendix B.) Participation here meant that each teacher had an opportunity to present his or her work to the others. During the conference, each teacher was presented with a plaque, and was awarded a small grant of Rs.3000 to further his or her work. A brief report on the use of this small grant initiative is presented in Appendix

C. The first year of the project focused on Gujarat and Maharashtra. However, because of the efforts of local partners, and news of this work reaching teachers in other states, some teachers from Kerala, Madhya Pradesh, Assam and other states, also participated. During the conference the teachers' consent for presentation of their work in Yearbook form was also obtained. This is crucial in ensuring that the work is identified with the teacher concerned.

We use a first-person narrative style so as to enable readers to listen to the teachers. The write-ups presented here are edited and condensed versions of much longer accounts. We encourage readers to contact the teachers directly to get more details and clarifications on the experiments or interventions described in brief here. The next section contains the names of the teachers represented in this Yearbook. We have refrained from presenting a 'summary' of the teachers' work, since we would like our readers to make their own assessments. The cases of the 58 teachers are presented next. We begin with the work of the teachers from Gujarat and Maharashtra, and then take up the work of the teachers from the other states. We note with sorrow that one of the teachers represented here, Smt. Divya Bhatt, passed away after her work was documented but before the conference was held.

We thank the Sir Ratan Tata Trust, Mumbai, for the financial support extended to the project. This project has been based at the Ravi J. Matthai Centre for Educational Innovation, Indian Institute of Management Ahmedabad. We thank the Institute for facilitating this work. We also gratefully acknowledge the assistance provided by our partners (Appendix D) in screening the entries, nominating teachers, and visiting the places where the identified teachers worked. We hope this Yearbook will provide brief examples of the work that many of our outstanding primary school teachers undertake in extremely difficult conditions.

A final note on the title is in order. While some of the teachers in this collection have focused on improving the quality of their education through a variety of projects, most have focused on bridging social disparities in enrolment, ensuring regular attendance and keeping children in their schools for a certain number of years. This focus is in line with the goals of universalisation of primary and upper primary education. One often hears questions like, "How many districts have been universalised?" or "How many states have attained universalisation?" Shri Manibhai Vaghela's statement (quoted in his contribution) that universalisation has to be "from the village upwards" presents a different perspective. After so many years of targeted attention—in mission mode—to enrolment, retention, achievement and reduction of gender and social disparities through large-scale and well-designed interventions like the District Primary Education Programme and now the *Sarva Shiksha Abhiyan*, it is appropriate to map the villages and perhaps the towns where near universalisation has been achieved. Learning from the experiences of such places may offer lessons in the contextualisation of the process of moving towards universalisation. Certainly, achieving full enrolment, through state-run schools or private elementary schools—recognised or unrecognised—is easier than ensuring high levels of attendance. Many of the cases here repeatedly stress the importance of regular attendance and of reducing absenteeism. The lowest level of drop out achievable can at best be "near zero", and as some of the cases point out, having a target of at least five years in school, helps make educational breakthroughs. In addition, there are random examples of attention to the disabled, as part of universalisation attempts. Achieving near universalisation is impossible, as many of the cases illustrate, without eliminating social and gender disparities and overcoming the socio-economic barriers that hinder educational performance.

The Teachers' Addresses

II

1. Divyaben R. Bhatt (deceased)
C\o Hiren Vaid
Vidhyanagar Society
Near Madhuram Society
Junagadh

Not available

2. Sunilkumar S. Bhatt
12, Rajendra Nagar Society
Mukam Post,
Rajpipla Taluka Nanded
Dist. Narmada Gujarat 393 145



3. Bhavesh R. Dadhaniya
5, Vaajsurpura,
Shanti Nivas Mukam Jasdan,
Taluka Jasdan
Dist. Rajkot Gujarat 360 050



4. Ushaben J. Daki
Deepak Pan Centre
Akheda Vistar, Mukam Chorvad
Taluka Maliya
Dist. Junagadh Gujarat 362 250



5. Popatbhai R. Devluk
Juna Padar Primary School
Mukam Post Valukud Via Vartej,
Taluka Ghogha, Dist. Bhavnagar
Gujarat 364 002



6. Rameshbhai A. Dhodakia
Kamalapur School
Taluka Jasdan
Dist. Rajkot,
Gujarat



7. Dhanrajgiri H. Goswami
Girdevli Primary School
Mukam Post Girdevli
Taluka Kodinar Dist.
Junagadh Gujarat 362 710



8. Nanjibhai J. Janjani
Sukpar Girl's School No. 2
Taluka Bhuj
Dist. Kutch
Gujarat 370 040



9. Harshadkumar R. Joshi
Mukam Post Patdi,
Joga Nivas, Chokshi Sheri
Taluka Dasada
Dist. Surendranagar Gujarat 382 765



10. Jayantilal D. Jotani
At & Post Dasada
Taluka Dasada
Dist. Surendranagar
Gujarat 382 750



11. Parshottambhai V. Koli
Koli Vas, Mukam Post Maroli
Taluka Umargam, Via Sanjan
Dist. Valsad
Gujarat 396 130

Not available

12. Prerna A. Mehta
A-13, RTO Relocation
Near Ganeshwar Mandir Bhuj
Dist. Kachchh
Gujarat



13. Baldevbhai N. Pandya
Shri Suman Park Cooperative
Housing Society B-2, Behind Market
Yard, Railway East Section, Kalol
Dist. Gandhinagar, Gujarat



14. Leelaben A. Parmar
"Shrenilij", Jeevandeep Society
Near Pushp vihar, Gamdi Anand
Dist. Anand
Gujarat



15. Bachubhai V. Patel
Mukam Post Moti Khajuri
Taluka Devgadhi Baria
Dist. Dahod
Gujarat 389 380



23. Sharmishthaben B. Patel
7, Shrinathji Society, Mangalpur Road
Behind Ganesh Chokadi,
Anand Taluka Anand
Dist. Anand Gujarat 388 001



16. Harjivandas V. Patel
36, Shreenagar Society
Mandav Road, Dahod
Dist. Panchmahal
Gujarat 389 151



24. Ibrahimbhai B. Qureshi
Asst. Teacher, Pay Centre School
Jainabad Taluka Dasada
Dist. Surendranagar
Gujarat 382 765



17. Jayeshbhai N. Patel
94/2, Gayatri Nagar Society Mukam
Post Diyodar Taluka Diyodar
Dist. Banaskantha
Gujarat 382 330



25. Dharmeshbhai M. Ramanuj
"Upasna", B/h Press Mahuva Road
Taluka Savarkundla
Dist. Amreli
Gujarat 364 515



18. Kailashben M. Patel
Mukam Post Pal
Taluka Choryasi
Dist. Surat
Gujarat 394 510



26. Shankarbhai M. Sendhav
Village Tuvad
Taluka Sami
Dist. Patan
Gujarat 384 241



19. Karshanbhai J. Patel
Village Padar
Taluka Kankrej
Dist. Banaskantha
Gujarat 385 560



27. Nanubhai A. Tandel
Mission Compound Ahwa
Taluka Ahwa
Dist. Dangs
Gujarat 394 710



20. Rakeshbhai G. Patel
Melana Primary School (Nachiketa)
Via Ningala, Taluka Valbhipur
Dist. Bhavnagar
Gujarat 364 760



28. Rameshchandra M. Thakkar
Janki Vallabh Primary School
Padra
Dist. Vadodara
Gujarat



21. Ramanbhai G. Patel
Ghandhi Khadki
Near Swaminarayan Mandir
Taluka Thasra, Dist. Kheda
Gujarat 388 250



29. Manibhai R. Vaghela
Sama Primary School
Taluka Baroda
Dist. Baroda
Gujarat



22. Shantilal N. Patel
A-121, Keshav Park Society
Piraman Road Ankaleshvar
Dist. Bharuch
Gujarat 393 001



30. Anavar M. Vhora
Mukam Post Gawasad
Taluka Padra
Dist. Vadodara
Gujarat 391 430



31. Rajesh M. Bankar
Village Donde
Tehsil Kheda
Dist. Pune
Maharashtra 410 505



39. Shiddharam R. Mashale
Vanjhare Niwas,
Opp. Shimmo Hippargikar, Akkalkot
Minicipal Colony, Bagehalli Road,
Dist. Solapur Maharashtra 413 216



32. Ananta H. Baodhankar
D-80/81, Mantri Chandak Nagar
Bhavani Peth
Near Roopa Bhavani Temple, Solapur
Maharashtra 413 002



40. Sulochana S. Salgar
"Mayur", Vidyanagar
Vishram BagSangli,
Dist. Sangli
Maharashtra



33. Yogesh K. Chaudhari
Pankaj Vidyalaya (Primary)
Pankaj Nagar, Chopda
Dist. Jalgaon
Maharashtra 425 107



41. Nilesh P. Shelke
Plot 2, Vijaya Gruh Nirman
SocietyFagane, Taluka Dhule
Dist. Dhule
Maharashtra 424 301



34. Prashant K. Gawande
C/o Mr. Bhavsahab Aglawe
Zilla Parishad Colony Vikash Nagar
Nr. Gujavan Mandir
Dist. YavatmalMaharashtra 445 001



42. Ramjan R. Tadvi
Kendriya Purv Primary School
Kumbhar khedaTaluka Raver
Dist-Jalgaon
Maharastra



35. Murlidhar K. Jadhav
Hemant SwaranjaliNiwara Colony,
By PassMangarul Pir Road Karanja
(Lad), Taluka Karanja
Dist. Vashim Maharashtra 444 105



43. Gyaneshvar Dubey
18/2, MPG House
Khashar Vadi Ramghat Marg
Ujjain
Madhya Pradesh



36. Laxmi V. Kasture
N-44-C-B2-10-6, Cidco-4
St. Xavier's Road, Nashik 9
Dist. Nashik
Maharashtra



44. Bashir Mohammed Khan
Bakhtavar Marg-3
Hatwada-Dabri
Dhar
Madhya Pradesh



37. Narendra B. Khairnar
Zila Parishad Shala,
KokanipadaPost Anjane,
Taluka Navapur, Dist. Nandurbar
Maharashtra



45. Kailash C. Pandey
2/67, Nai Aabadi
Gol Chauraha
Dist. Mandsaur
Madhya Pradesh 458 001



38. Rahul D. Londhe
Mukam Post Aran
Tehsil Madha
Dist. Solapur
Maharashtra - 413309.



46. Sardarsinh Rathod
Retired Teacher
Gram and Post Kesur
Dist. Dhar
Madhya Pradesh



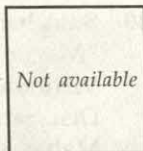
47. Subhash S. Yadav
Shikshak Block Colony Nalchha
Post Nalchha
Dist. Dhar
Madhya Pradesh



53. Rakesh Jain
Village & Post Kot Khavda
Tehsil Chaksu
Dist. Jaipur
Rajasthan 303 908



48. K. C. Babykutty
H.M. Primary Section
Labour India Gurukulam School
Marangatupilly P.O. Dist. Kottayam
Kerala 686 635



54. Ramchandra Sharma
Jaat Mohalla
Nathdwara
Dist. Rajasmand
Rajasthan



49. P.O. Chacko
Arackel House
Nedumkunnam
Kottayam
Kerala 686 542



55. Sukleswar Deka
C-32, No. 2, Dalaigaon
P.O. Tengabari (Kalaigaon)
Dist. Darrang
Assam 784 525



50. Laizamma V. Korah
Kadackal House
Thalassery
Thiruvalla
Kerala



56. Ramkumar S. Verma
22-23, Block No. 4/F1
South Vasundharanagar
Bhilai 3, Dist. Durg
Chattisgarh 490 021



51. K. Ganesh
House No. 6, Main Road
Nettapakkam
Nettapakkam Commune
Pondicherry 605 106



57. Roshani Devi
M.C. Primary School
V. P. O. Sindhu
Delhi Nagar Nigam,
Rural Zone, Delhi 110 040



52. S. Sriram
Government High School
Karaiyam
Buthur
Pondicherry 605 106



58. Ramesh P. Patri
Saraswati Vihar
Tarbha Taluka Sonepur
Dist. Sonepur
Orissa 767 016



The Teachers' Work

III

... can be interpreted as a constitution of ... brother and sister, respectively ... is as good as a mother, and ... and caring as a mother can be. I have ... understanding, and I was fortunate ... opportunity to combine what I learned ... work gained me a lot of appreciation. Here ... of my efforts.

Against the Eye of 'Unobservability'

... was a lot. Verbal Abuse, Capital ... the surrounding village during I in ... There were mainly two categories, the ... caste. Each ... very violent ... The Hari used to stay in the ... they were considered to be ... who were socially despised and ... the Ahir children by ... Once they did so, the Ahir ... that food", which was thrown ... the Ahir children ... and go home. I was pained to see ... a formal structure ... children for discipline and ... and asked ... could become 'unobservably ... My message was, "There is nothing like ... I began to discuss this issue ... community leaders and other ... but I was disappointed ... received some support, but ... when they studied together ... working together ... I can tell how ... changing children's ... constant, focused messages is

possible even if it is made to change social norms ... that ...

At another place I took over a school ... and ... Hari school to which I was transferred. I had a special ... who ... to play with my ... and ... This girl belonged to a ... 'unobservable' ... the ... to my home ... my home by all ... I ... a whole lot and ... With the ... treated her like her own daughter, and she also ... participated ... of my ... she now has a daughter herself.

Education of Girls

When I was working in Chaudhary, Veraval, I noticed that the presence of girls was almost zero. There was a strange ... that the school ... were engaged ... and so they did ... I felt that this was not a problem ... which had no solution, and I talked to the parents ... they could study together in an institution like our school, setting aside their social values which had become barriers. There was a lot of opposition from my side, and I made girls go to the school. Thus, both 'barbaric' and 'wild' ... study together. Such ... but with a little persuasion, the ... can be communicated differently.

DIVYABEN R. BHATT

1

Master, in Gujarati, can be interpreted as a combination of 'Ma' and 'sthar', meaning mother and status, respectively. A primary school teacher is as good as a mother, and should be as loving and caring as a mother can be. I have tried to act on this understanding. As I was fortunate enough to get an opportunity to combine what I like and what I do, my work gained me a lot of appreciation. Here is a brief description of my efforts.

Working Against the Evil of 'Untouchability'

My first appointment was at Inaj, Veraval *taluka*, Gujarat. Children from the surrounding villages also used to come to this school. There were mainly two communities, the Ahir and the Harijan Hadi, scheduled caste. Each despised the other. This negative attitude was very evident even among the children. The Hadi used to stay in the outskirts of village since they were considered to be 'untouchables'. Their children were socially despised and so they used to enjoy irritating the Ahir children by touching their tiffin boxes. Once they did so, the Ahir students "could not eat that food", which was thrown away. This created a problem for me since the Ahir children then used to take leave and go home. I was pained to see all this. I raised the issue in the *Bal Sabha*, a formal structure which gathered the school's children for discussions, and explained to them the evils of untouchability and asked how food or a person could become 'impious' merely because of touch. My message was, "There is nothing like a lower or a higher caste." I began to discuss this issue also with the people, community leaders and other students. It took time and patience, but I won ultimately. At least my students received some sense; the breakthrough was achieved when they studied together. This behaviour was then extended to working together, and then eating together. Up to this day, I am told how people are happy about what I did. Changing children's behaviour through constant, focused, messages is

possible, even if one is unable to change social mores and customs that promote undesirable behaviour.

At another place, I took what I consider a more active, and dangerous, step. There were many girls in Manavadar Girl's School, to which I was transferred. I had a special affection for them. Among these girls, there was a girl who used to come to my home regularly to play with my small son. She used to carry him lovingly, played with him, and treated him with affection. This girl belonged to a community considered to be 'untouchable'. When the people realised that an 'untouchable' girl came to my home regularly and played with my son, everybody criticised my attitude. People used to tell me that I would "destroy" my home by allowing her to mix with my family. I also incurred the wrath of my relatives. I just continued with my behaviour and messages. With the passage of time, we treated her like we would our own daughter, and she also accepted my husband and I as "parents". She participated in all my family functions. Now, she was a part of our family, and the wall of caste was broken. She now has a daughter herself.

Education of Girls

When I was serving at Chanduvav, Veraval, I noticed that the presence of girls was almost zero. There was a strange reason. I found that the school-enrolled girls were engaged to the boys studying in the same school, and so they did not come to the school. I felt that this was not a problem which had no solution, and I talked to the parents. I repeatedly assured them that girls and boys could study together in an institution like our school, setting aside their social values which had become barriers. There was a lot of compulsion from my side, and it made girls come to the school. Thus, both 'husband' and 'wife' used to study together. Such compulsion is necessary many times, but with a little persuasion, the compulsion can be communicated differently.

When I was at Manavadar, there were many Muslim girls in my school. After their Class IV, many girls used to come with their parents for their leaving certificates. I was surprised, and asked the parents where they wanted to put their children. I was shocked to learn that the girls would not be allowed to study further. I was very unhappy; the girls had to give in to this ridiculous social barrier, when they themselves would have loved to play and learn. I started a routine of evening home visits. I tried to convince the mothers, but their beliefs did not change. I did not lose my courage and went again and again, talking about the same issue. I cited the examples of many highly-educated Muslim women, all to no avail. Then I reworked my approach. One girl's father was the *Taluka* Development Officer. Now I had a target, since he advocated girl's education as part of the government's educational agenda. Here I had hit the right spot. He made his daughter resume her schooling. The girl studied up to Class VII in our school. This was an example for others, and a major breakthrough in my educational practice.

Importance of Education: Habit of Saving

When I was at Manavadar, there was a boy in my class who was considered a problem child. The teacher who taught this class before I took charge used to make this child sit in the HM's office. There were three other mischievous students who were also made to sit with him. I felt very sorry for these children, since they had made themselves very comfortable outside their own classrooms. After I took charge, I called them firmly and compelled, rather forced, them to sit in the classroom. I saw that they had no interest in the activities going on in the classroom. And one of the four always disappeared from the school after the recess. He used to sell goods like tomatoes in the market, earned some money, and spent it on a movie almost every evening. There was also some money for snacks. I observed his daily routine for a long time. Persuasion did not work. The habits were so deeply rooted that the boy did not show any sign of improvement. I decided to try something else. I called that boy and told him, "Sharif, I teach you, so I am your Guru. And you owe me *Gurudakshina* (Note: refers to a tradition of paying a debt to a teacher, followed in traditional Indian education, and is a widely understood term). So, you should give me five

rupees every fortnight." He not only agreed to give me the money, but within a short time he began to give me ten rupees every fortnight. Soon he started to give me ten rupees every week. The other three students also joined in this. I opened bank accounts in the names of these students. When the total reached a substantial sum, I told their parents and the other students about the incident and how the saving experiment had worked. Sharif was quite taken up by this, and gave me five rupees every other day. It was only after this sense of achievement was visible, that I gradually tried to draw him towards study. He did come back but did not go in for higher education, which was my aim. But it did him good, because he is a well-known fruit merchant today, with a good reputation. I have written a story on this experience, and it has been used in a teacher's magazine for inputs on changing student behaviour.

Personal Beliefs are Important

When there was a state-wide agitation on anti-reservation, I was in a remote place where strikes did not have much impact. I was present on duty; other teachers of my school and teachers in the nearby villages were also on duty. The government declared that those teachers who were on duty would get double pay. Some absent teachers manipulated the records to mark themselves present! This greed annoyed me. As a message to such teachers, though I was present, I refused to accept the extra money. I personally believe that a teacher should stick to certain fundamental beliefs, so that one's image as a professional is not destroyed. For this lesson, I am indebted to a teacher in my childhood. He taught the art of cultivating faith in students so as to inspire them and help them overcome fear. And I have experienced this in my life with my own students. Speaking the truth is the best way to overcome fear. For example, I made students mark out the textbook topics they have learned, and encouraged them to be honest about it. When I taught a lesson, I made the students circle that particular lesson in the textbook's contents. I ensured that they could monitor what was yet to be covered just by looking at the contents. Once we had a school inspection. The Education Supervisor was a very strict person, known for examining everything minutely. When he came to my class, he asked some formal questions to the students. The

next piece of conversation between the officer and a student went as follows:

ES: How many lessons have been taught in Gujarati by your teacher?

Student: Sir, those lessons are circled in the textbook that is in your hand.

ES: You must have circled the lessons because your teachers must have told you to do so.

Student: Sir, the lesson is circled only when the teacher has taught that lesson.

ES: How many lessons have been taught?

Student: Sir, ten lessons have been completed and the eleventh is half completed.

ES: Your teachers must have asked you to say so.

Student: Sir, we have learned not to tell lies. We will talk about only what is done.

I could see the child got tremendous satisfaction by just speaking the truth and showing off some work done systematically. I have used the same principles in my other activities, *Garba*, drama, youth festivals, eye camps, medical camps, and so on. I have specifically tried to solve the problems of girls and women, relaxing the constraints of my understanding and capacity to the extent possible. But resources have never been a problem. The small amounts needed have always come from the people. As this money has been used well, I have gained respect in society, and so my educational work goes on without any roadblocks.

Our primary school is situated in a tribal village. As a class teacher, I felt that the recess timings of our school were more of a hindrance than a help. I did not get an adequately long and continuous stretch of time, when I could engage the children. Almost all the children's parents were labourers. Children went home just after noon for a very short break. The parents returned around that time and then started to cook. The children would wait at home and come back to school very late. Again, at 1.30, they got down to the mid-day meal. I wanted to change the timetable. In our school, we hold a meeting at four o'clock on the last day of the month. Every teacher is given a topic which needs to be discussed. Once I took up the idea of abolishing the 12.15 recess, and replacing it with a practice which allowed children to go out in pairs to the urinals or to the drinking water pot. My colleagues did not like this proposal. But, as the HM, I overruled them. Gradually, I managed to ensure continuous presence in the school from 11 in the morning to 1.30 in the afternoon. Surprisingly, this pattern, once it worked, was welcomed by the parents and even by those teachers who had opposed the idea. A second benefit was that irregular absence (disappearing from the school for the rest of the day) was no longer a problem.

A little information about the monthly meetings. I know that meetings are common in organisations. I thought of instituting this mechanism to bring about some professionalism and an element of monitoring into the teachers' work. I made the junior-most assistant teacher the President of the very first 'meeting'. Over time, the modalities of conducting the meetings have been streamlined. Now, one week prior to the meeting, the agenda book is circulated among the staff members. Whenever the meeting is held, the agenda is read out in the presence of all the participants and discussions held. Finally, the minute book is signed by all the members. For example, the meeting held in December 1995 had the following points on the agenda.

1. Discussion about the syllabus.
2. Preparing a new register for dead stock.
3. The nuisance posed by an insane man in the village.
4. Review of the newspaper bought by the school.
5. Review of irregular children.
6. TLM evaluation.
7. *Vande Mataram*.

Such meetings help in resolving problems co-operatively, discussing new concepts and approaches to teaching, and taking up creative activities. The outcomes are noted in the minutes book and they are reviewed in the next meeting. A teacher is President only for one meeting. Thus, every staff member is made active and given an opportunity to contribute. A sense of team work has been created. The minutes book helps in monitoring, since proper documentation about the work done and work pending is made.

Making Low Cost and Effective TLMs

The roots of my liking for TLMs are in my childhood, when I was very good at making toys and painting them. TLMs are easily damaged when children use them. Therefore, multiple low-cost copies are necessary. When I visited rural fairs, I was struck by the toys made of plaster of paris. So I used a plastic toy mould and substituted plaster of paris for clay. The inside of the plastic is oiled and then the mixture poured in. The mould can be reused whenever needed. Children enjoy learning and making such toys. In addition to plaster of paris, we have used jute strings and pieces of jute. For the colouring, we make natural dyes in the school itself. I had learnt the art of making natural dyes as a child. I have taught this to the school children. They have to make the dye and paint the toys themselves. The dye is not harmful, and children enjoy the activity. Of course, the scope for teaching many things in the process is immense. The models made by the children (different

animals, birds, vegetables, fruits, dolls and maps) are displayed in the school. The students and teachers of my school—and also since this technique has spread, of my CRC schools—make such toys now on their own at their homes and in the schools. What better results could I expect from my efforts?

The children have made this activity a source of income as well. They sold these toys in a fair that is held at Shri Nandikeshvar Mahadev temple at Jitnagar, two kilometers from the school. These children come from very poor families, but the income from the sale is saved. Such activities, along with control over the timetable, have abolished the problem of irregular attendance.

Added to the above are my efforts in music and puppetry. Though I am not a musical person, I developed certain basic skills and this has helped us in creating a fun environment. I provide all the teachers with jingles, puzzles, songs, action songs, poems and other literature for musical activities. Every Saturday, I sing action songs with children. We make masks of various kinds. Puppet shows are held in the presence of the members of PTA, VEC and MTA. Lessons are taught by dramatising them in the form of puppet shows. The cumulative impact is that we were able to achieve almost 100% presence in the school. The teachers also felt motivated with the increased presence of children. We are still using these techniques for sustaining children's interest and to increase their participation. In addition, we have started to use Punjabi

Bhangra dance, Sanskrit poems, and Rajasthani, Marathi and Assamese songs.

Student and Community Co-operation

Once during the mid-day meal, some students got into a fight. I was disturbed. I began to sing a *Bhajan* before our meals. Secondly, once all the children are served their food, I made every child offer a couple of morsels to his or her neighbour; the act would be reciprocated by the other child. Then everyone would start to eat. This has had a good impact.

With the formation of VEC, PTA and MTA, we realised the need to get support from the community. In order to achieve this objective, I thought of a new method. We began to gather at the school at four o'clock on the last Sunday of the month. When we ring the bell, all the children gather in the school, and we go to a street or place that is pre-decided. Now, importantly, we hold a meeting there. This is also accompanied by a cleanliness drive. Due to these efforts, the village community stands by us whenever required. The key to community co-operation is making them realise that the school is a local institution, a part of the community and something that builds the future of their children. Now we invite some well-known personalities of the area (doctors, lawyers, social workers, retired HMs, President of District *Panchayat*, farmers) to these Sunday meetings, so that they can share their knowledge and ideas with the children.

I started my career as a primary school teacher in 1997 at the Vadod Primary School, Jasdan, Rakjot, Gujarat. At that time, the population of the village was about 2500 and the adult literacy rate was very low. The level of school education among the adults was almost zero. The economic condition of the villagers was very weak. Their main occupations were agricultural labour and cattle rearing. The village mainly had *Koli* and scheduled caste communities. The registered number of students exceeded 400 and there were six teachers. In spite of this, the condition of education was very depressing. I first realised that cultural programmes were totally missing. Some sporadic efforts had been made in the past. This was a major gap, and so on the first Independence Day that I spent in the school, I organised a series of cultural programmes with the children. All of them enjoyed the performances. The participants also got an opportunity to express themselves.

Compilation of *Bal Tarang*

During my activities in the class and interactions with the students I realised that their general knowledge was very poor. If something could be done to develop the reading habit, the regular teaching learning process would benefit. I read Dr. Ishvar Parmar's book "*Shikshan na Sitara*" (The Stars of Education). The life and work of great teachers became a source of motivation for me. I studied their work and ideals. I then decided to produce a general knowledge compilation. I used to read children magazines, books and other literature for one to two hours every day. Based on this knowledge, and with the inspiration of my teacher friends, I produced a book '*Bal Tarang*', which had 20 sections of general knowledge, prayers, *Dhun-Bhajan*, patriotic songs, inspirational songs and poems, puzzles, math quiz, information about the computer, new developments in science, and so on. I also took the help of other teachers, educationists and literary personalities. With guidance

from the DPEO and DIET, the first edition was published in 2000. All the 1000 copies were sold out in just two months. The cover price of '*Bal Tarang*' is Rs.30. But it is sold at Rs.25 to teachers and poor students. The production cost is Rs.20, and the margin is set aside for my de-addiction campaigns. (Addiction to tobacco among the young is a serious problem in the area.) Up to now, 6000 copies have been sold. The advantages of this book are as follows.

- It is used in many schools to provide a focus to the prayer assembly. The general knowledge of students has improved.
- The book has been used by the children to prepare for tests and competitive examinations like *Bharatiya Gyan Kasoti*.
- With the improvement of the general knowledge of the students, the hurdles in classroom teaching have reduced.
- The book has earned me some recognition also. The biggest satisfaction for me is that I am able to spend the profit on de-addiction campaigns.
- Inspired by my effort, two teacher friends of mine are also compiling story and quiz books.

Vyasanmukti (De-addiction) Campaign

When I joined the school, I was shocked to find that about 60 children of Classes IV to VII were regular eaters of panmasala, gutkha and other tobacco products. I found that their parents were also addicted to such products. They used to ask their children to buy these things for them, and the children also started to consume tobacco. Two of the six teachers were addicted as well. On further study, I found that almost all the surrounding villages faced a similar problem. The children suffered bodily damage and financial losses. I decided to free children from this vicious habit.

I called a meeting of the parents and the children in the school compound one day. My main intention was to

make them aware of the diseases caused by the addiction and the financial losses they entailed. I explained about cancer of the mouth, lungs and stomach, and pointed out that the only destination was death. The calculations we had made also showed that the Rs.3600 spent by a small family every year on tobacco products, could be used to buy more productive things like clothes, books and pens for the children. After a lot of follow up, such explanations had the expected effect on children. I monitored the results and about 70% of the addicted children gave up tobacco. Some parents, but not most, followed suit.

I decided to extend this campaign to other schools and teachers of the *taluka*. Meanwhile I happened to go to the *Asharam Ashram*, Ahmedabad for training in Yoga. During this training, we were shown a CD on de-addiction. This added to my enthusiasm. I bought two CDs. The CD has content recorded from the cancer hospital at Ahmedabad. It shows the adverse effects such addiction has on our bodies. Over a period of 16 months I ran a campaign in 10 schools of my cluster. Many children were de-addicted during this campaign. My teacher friends also freed themselves from these habits. Three teachers are now very determined to prevent children from addiction.

At present I am HM in another school which has 66 students in Classes I to IV. Ten of these were addicted to chewing tobacco. Drawing on my earlier experience, I started with an educational meeting, and followed up with talks and the CD. House to house visits and making people take pledges to free themselves are important. Till now, from the 10 schools, I have a list of about 150 children who have been persuaded to give up chewing pan masala

and tobacco. This effort has built my credibility with the parents of the children studying in my school. Three of my teacher friends now help me in running this campaign in their villages and schools. With this campaigning style, over six years, we have been able to achieve following objectives.

- De-addict children through persuasion, discussion and visuals of the potential damage.
- Monitor whether children have a positive influence on their parents. Many parents have indeed given up the habit at their children's initiative.
- Making addicted teachers quit the habit.

I am satisfied with whatever I have achieved. Educational administrators have also appreciated my efforts. Many schools and teachers have joined me in this campaign. In my own school I have followed up my earlier campaigns with a 'cleanliness campaign'. Children are highly vulnerable to diseases caused by a lack of cleanliness. Most of the families live on their farm lands, often in temporary houses built during the agricultural season. A teacher friend of mine, Ramesh Dhodkia, had already done something with a school-based cleaning kit. Learning from him, I have kept a cleanliness kit in my school. It includes three to four combs, soap, napkins, nail cutters, scissors etc. Every Monday, I check the children's cleanliness. If a child has not cut his/ her nails, I cut the nails in the presence of all the children. We have also organised a rally to explain how to keep drinking water places clean and about the need to cover the food properly. The campaign has been quite successful.

USHABEN J. DAKI

When I did my secondary education, I had to go to a nearby village. This was considered a daring act at that time. The community was very conservative and very few children, especially girls, could go out of the village for education. I had to face a lot of criticism. It was at that time I decided to do something unique. I completed my higher secondary education by staying in a hostel and then underwent my teacher-training course. My experience in primary education is limited, but I will describe my experiences in Shantipara, a fairly large village. This village has four schools, three on the outskirts of the village and one in the village. I was put in one of the far away schools. Most of the people belong to the Ahir community. Though considered a 'backward' community, in recent times there has been a lot of awareness of education among the Ahirs. Their main occupation is agriculture. In spite of the relatively good condition of the schools, traditional beliefs and customs sometimes caused irregular presence of children in school. This had an impact on the organisation of activities like the prayer assembly. I decided to introduce, in the assembly, children's songs and action songs. I also realised that with the advent of television, many people watched serials with interest, and were curious about what would happen in the next episode. The serials did a good job of creating suspense, which motivated the audience to wait for the next episode. Children also like suspense. I thought of taking up a story which could proceed like a serial. I searched the school library, and finally chose Jivram Joshi's well known series, *Adukiyo Dadukiyo* which is full of suspense, thrills and adventure. It was an apt tool for my purpose. I started to tell stories from this series and saw to it that I ended a particular episode at a point where curiosity of the children was aroused. I did this for six months.

As expected, children's regularity increased. My objectives were being achieved. Children began to come in time at the time of prayer assembly, and were absent only on special occasions or during festivals. They wanted

to know, "What will happen tomorrow?" Such interest also increased their imaginativeness. New words, new ideas and adventures were developed, but there was a wide variation among the children. But one thing I noticed was that in spite of this variation, there was some logic or system to their speculation. Sometimes even the teachers requested that the episode be postponed to the end of the day, since some other important school work had to be done during the story telling time.

After this experiment, the children demanded a new story. I was a bit worried, since I had not seen the initiative as a continuing one. Then I thought of using the Mahabharat. One goal was to choose a story that is long enough. Secondly, children though familiar with the broad outlines, were not that familiar with the detailed stories. There was a lesson in Class V from the Mahabharat. I also realised that the current generation was not being told these stories in their homes in detail; the assumed familiarity with our ancient epics had to be cross checked. The Mahabharat has served me quite well. I have realised that for generating interest among children, such long stories told in an 'episodic manner' are more effective than short stories told everyday.

Special Attention to General Knowledge

Since the children were farm based, their exposure to the print and electronic media like newspapers and television was limited. I realised that their knowledge of the outside world was poor. My husband and I used to identify ten questions on general knowledge every week. We saw to it that these questions were in consonance with the level, the understanding, the interest and the curriculum of the students. They covered subjects like contemporary incidents, geography, science, and sports. I used to write all these questions on the blackboard so that the children did not make any mistakes in spelling. The children were supposed to find out answers to these questions during

the week. A test was held the following Saturday. The answer sheets were checked and the students were given marks like in any other examination. Then, the children were expected to write the correct answers in their notebooks. I found that this activity generated curiosity to learn new things, especially from the older people. The children have now developed the habit of reading books and newspapers from the library. The parents have appreciated this activity and motivate their children in their efforts to learn new things. One change I have introduced is that at the end of four Saturdays, that is, at the end of four rounds, I give a prize to the child who scores the highest.

I came across one more problem in my initial days. On Saturdays I found the presence of children less than that during the weekdays. One reason I found was that since this was a half day, children took it lightly. I thought of using a *Bal Sabha*. I used to give the children a subject on Monday. Any child who wanted to present something was to register his or her name with me by Friday. This programme consisted of many activities like children's songs, action songs, elocution, story telling, mimicry, and

so on. This was just entertainment and the children liked it. Gradually Saturday attendance was almost full. Along with this, of course, the students developed different skills in stage performance. It also helped me understand the hidden potential of children. The activity became so popular among students that if I forgot to give some topic, children reminded me.

I have taken up a few other activities, which may not have a direct relation to the school, but which helped me show concern for the community. Vacation was the best time to motivate children to get involved in activities which they could enjoy and perhaps specialize in later on. Once I announced a *Mehandi* competition before the vacation. Children practiced during the vacation and a competition was held when the school reopened. Though I did not repeat the activity, I have noticed girls who started learning at that time, have continued with their practice. I also started coaching for Bharatnatyam for girls. I regularly conduct many cultural programmes and organise celebration of various festivals in the school. Ultimately, if the school is a nice place to go to, attendance, enrolment and retention are not problems.

POPATBHAI R. DEVLUK

I am the HM of Juna Padar Primary school, Ghogha *taluka*, Bhavnagar, Gujarat. I joined as a teacher at Lakadiya village of the same *taluka* in 1976. After working here for a short while I was transferred to Nana Khokhara village. Here I served for five years and developed as a teacher. The impact of the Bhagawad Geeta and Swadhyay activities has helped my educational activities. I have made knowledge, action, devotion, service and honesty as the principles which would guide my life and educational activities.

At Juna Padar, initially I was the only teacher. The school had Classes I to IV. The total population of the village was 351 and the village was very backward socio-economically. The total number of enrolled students was 24, and only seven or eight students used to remain present in the school. Not a single villager paid any attention to the education of the children. Very soon an order to close this school came from the government. I simply observed the situation of the school and the village for a few days. The village cattle were kept in the school premises. About 65 children of village were not coming to the school. I decided to accept the challenge.

I felt that a close relationship with the villagers was the only remedy for these problems. I tried my best to help them in their socio-economic activities. I met the elders and discussed the problems of the school and tried to make them understand the severity of the situation. With the help of the female members of my family, I arranged a meeting of the women of the village and they were also exposed to my concerns. The villagers blamed the teachers who had worked in that village earlier. I heard them out patiently and assured them that the experience would not be repeated. In exchange, all the villagers promised to send their children to the school. Next day I visited each home and filled the admission forms on the spot. Seventy eight children were enrolled at one go. This was a breakthrough and since then the school has made step by step progress over an 18-year period.

Initially I used to go to the homes of those students who did not come to the school on time. If the child was not ready, I waited for him, and did not leave the place without carrying him with me. The children from the surrounding hamlets used to walk to school. If some child was absent for sometime, one of my colleagues or myself would go to that place and bring the child on a cycle or motorcycle. All the teachers and students used to bring some food. We used to sit together under a tree and have our lunch together. We also arranged to start a *Bal Anganvadi* for children up to five years of age. After Class V, the girls used to quit studies. We kept track of these girls, and as new classes (VI and VII) were introduced, we enrolled them and they resumed their study. We also arranged to send these girls to a high school some distance away. A *Bal Mandir* was started under the title "Lav-Kush". We appointed a lady teacher as an honorary worker for this activity.

Once the enrolment went up, I contacted various individuals, the *gram panchayat*, industries, and the local bank for donations for the school. The villagers contributed the physical labour to build a room. We also created our own source of income in 1988 by starting a garden nursery in the school. Today our school has got very good infrastructure and physical facilities. During the 1980s we gathered Rs.1,85,000 from various sources for the physical facilities. In 1990 one individual created a fund in someone's memory and the amount was deposited in bank; from the interest, bright students are given prizes ever year. We received cash prizes from the government for attracting out of school children from the surrounding areas to our school, in 1986, 1987, 1989 and 1990. The total amount of Rs.15,000 was spent on infrastructure.

The school has also undertaken developmental activities like being part of the *Gram Rakshak Dal*, informing farmers about modern techniques of farming, facilitating a Farmer's Training Camp, training women in reducing wastage of grain, participating in NCC and NSS camps,

arranging for government support to physically challenged people, and conducting a number of literacy and medical camps.

I have founded various informal groups like Youth Association, *Bal Sanskar Kendra*, Mahila Satsang Mandal, and *Ramapir Mandal*. With their help we got a bore well made and installed three hand pumps to solve the water problem of the village. We also got a bench made at the

bus stand. I am a member of the Development Committee of *Gokul Gram Yojana*, and we mobilised a lot of facilities for the village. This village is an example of communal harmony; half the village is Muslim and the other half is Hindu. Social occasions are celebrated together. I also keep *Roza* and accomplish the *Roza* in the mosque. I must accept that whatever efforts I have done for the development of this school have been inspired by the philosophy of *Swadhyay* of Dada Pandurang Athavale.

RAMESHBHAI A. DHODAKIA

6

I have been teaching since 1993. I started in a school with Classes I to IV. The tribal village had only about 500 people, but the homesteads were very scattered. I had to handle all four classes. The situation was completely new for me and there was the problem of language also. But with the inspiration that I received from my Guru, I employed whatever I knew about teaching. I had 70 students, all of whom had to be taught at the same time. I felt very sorry for these innocent children from poor and backward families, trying desperately to come to school. I concluded from my analysis that making children attend regularly was one challenge; managing the inside-school activities was another great challenge. First, I made a class-wise seating arrangement for all the children in the lobby, in the compound and in whatever open space was available. The reason for using the open place was that the school had only one room, only half of which was covered by a roof. I applied for one more room and devised a 3-stage system of multi-grade teaching: interaction among the students, individual lesson work to be done by the students, and the teacher's checking. I met the elders and leaders of the village and held discussions with them on what I was trying to do. Gradually the irregularity of children reduced; this motivated me. Then I collected information on all out-of-school children of school-going age and enrolled them in Class I.

In 1994 I was exposed to some child-centred pedagogical techniques through in-service training. I immediately started to teach through songs, games and made my own teaching learning material. This further helped in improving the academic situation of the school. It definitely helped change the atmosphere inside the classroom. In the village, I tried to help out with information on agriculture and spoke about the advantages of secondary education. I also opposed some customs like animal sacrifices. People were receptive since I was doing a good job with their children in the school. We then planted about 2000 eucalyptus trees near the river bank

and celebrated *Van Mahotsav*, and I also took up literacy classes, with the help of volunteers, for the village adults. All these activities helped me build very good relations with the community.

Meanwhile I came to know about the educational situation in a nearby village, which was scattered over a semi-forest area. In one part of this village, inhabited by a tribe, there was no school. People of this community worked as labourers. I thought of involving my village people in bringing children of this community into school. Along with five people from my village, I went to the other village; we held a series of discussions with them and talked about our experiences. Finally, I succeeded in bringing about 40 children of varying ages to my school. That was a success for me and my villagers. Within a period of six years, enrolment and keeping children in school were not problematic.

I was then transferred to a fairly well-off village, and started teaching Class V. The school was a girls' school, and there were 61 girls. I realised that though the village was not that badly off, the girls were careless about the environment and their health. Also, there was a belief that one of the classrooms was haunted. This was a distraction. I prepared for many days with a friend and finally called all the girls in Classes I to VII. We held a magic show programme and gave different performances like bringing out a ring from a brinjal, showing a pumpkin broken from inside, passing an iron rod through the tongue, pulling out rice from a coconut, lighting a lamp without a matchstick, invisible writing, and so on. Finally we showed how to bring a 'ghost' out of a bottle. All these were of course tricks. We discussed the phenomena with the girls and illustrated the power of illusion and the harm of believing something which may not be true. Surprisingly, I achieved complete success in this venture.

Having done this, I made two girls responsible for checking the cleanliness of all the other girls every Monday. We declared in the prayer assembly, "Teachers of the other

classes will visit your classes and check their cleanliness." This generated the spirit of competition among the girls. The girls kept a dustbin in each class and saw to it that their classroom remained clean. When these systems of checks had regularized, an incident took place which showed that the girls included the teachers also as targets for inspection. One Monday, a group of teachers was walking with their students. The nails of teachers were also inspected, and one teacher was ordered to cut her nails. We were happy that the girls had developed the courage to express themselves thus.

Developing Self-esteem of Girls

If students are made to realise that teachers have an interest in their personal likes and dislikes, the problem of distance between the teacher and the learner can be removed. So I introduced the idea of "My Card". A card for each girl was prepared.

Name, Father's name, Mother's name, Mother's education, Father's occupation, Total members of the family, My favourite dish, My favourite game, My favourite colour, My favourite song, My favourite friend, I want to become....., Signature.

When all the cards had been filled up, we made a garland of the cards with a string and hung it in the classroom itself. We made a Happy Birthday Board in the prayer hall. If it was the birthday of some well known figure, leader or eminent personality, their names were written on the board. If it was some girl's birthday, her name would be called out in the prayer assembly. She would be asked to get up and all the others would greet her. She was privileged to wear a cap for the whole day. This indirectly contributed to the presence in the school. Every girl waited eagerly for her birthday. The girls talked to their parents about such greetings.

Sakhi Project: Learning with Each Other

In order to develop reading skills, I thought of a scheme called 'Sakhi Project'. First, I divided the entire village into nine sections. Lists of girls living in these nine sections were made. After this, for each section, I identified the girl who was the best performer in academics. She was made the group leader. All the girls of that particular section

were to gather at her place for one hour in the morning and practice reading, writing and counting. The teachers monitored the activity. This project has continued for many years now. It was obviously liked by the girls, since it gave them an opportunity to get together to learn something in an informal environment. They not only carried out the educational activities, but also started decorating their centres. They invited teachers to visit their centres. We used to motivate them by congratulating them. Because of this project, the students became regular in their homework, the attendance increased and the rapport between the school and the community was strengthened. This forum was perhaps instrumental in achieving the very high levels of regular attendance that I was able to show.

The *Sakhi* project informally helped parents learn something about the educational activities of their girls. I thought of communicating to the parents the regularity of their girls formally. Many parent took their girls along with them when they went out of the village; the girls would have liked to come to school. Whenever a child was absent, the parents were sent a letter saying, "Out of ____ days, your daughter was absent for ____ days. We hope that you will send your daughter regularly to the school now onwards." This experiment worked because the parents got the message clearly.

We further enriched the educational experiences of the girls with books which I gathered from various places. These were made available to the parents as well. Other activities included a 'Value Cultivation Week', drawing competitions, *Rangoli* and *Ras* competitions, and other cultural programmes. With the increased activities I thought of adding some facilities to the school. We gathered Rs.5000 from the community members for an amplifier. Speakers were placed in each class. The youth association of the village did the fitting of the instruments free of charge. We also insisted on an identity for the school through uniforms. This was appreciated by the girls. But we as teachers also felt that we could not be exempt. We discussed it amongst ourselves and designed a dress code: black trousers and pink shirts for male teachers and pink saris for female teachers.

My appointment as CRC Coordinator in 2002 gave me an important opportunity for discussing educational innovations. I have a huge pool of 60 teachers from seven

schools. I held meetings of the teachers every Saturday and took up various ideas for educational development, novel concepts, techniques and strategies. I organise about 30 such meetings every year. For instance, one idea which has been appreciated involved the group preparing a checklist of the qualities of an ideal school. Each school then had to identify which qualities were missing in their

schools, and make an action plan to develop them. The Sarva Shiksha Abhiyan has further provided a platform for making village associations active and I have used this opportunity to organise a variety of competitions and activities like origami, puppet shows, letter-learning activities for Class I students, and so on, in the entire area.

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I started my teaching career in 1986. My father Himmatgiri Otamgiri, a retired teacher, has been my source of inspiration. He guided me through my initial years as a teacher. I have also been influenced by Shri Manubhai Pancholi "Darshak" and Dada Pandurang Athvale. The girl students of Sindhaj Girl's Primary School (Kodinar, Junagadh, Gujarat) where I have spent many years (from 1993 to 2001), have been a source of motivation. They always persisted with the activities I started, and completed them successfully. The school was established in 1992, but when I joined, I found that the enrolment of girls was abysmally low. I thought about the problem and came up with the idea of introducing various "cards".

Presence Card

I introduced a 'Presence Card' in 1994 for the lower primary level. I used to give one such card to each girl who remained present regularly. The girl who gathered ten cards would go to the upper class without any testing whatsoever. Of course, there was a no-detention policy at the lower levels, but there was a minimum attendance requirement. Regardless of these policies, the girls felt that getting 10 presence cards was a big achievement.

Birthday Card

Another card was the birthday card, which was given to a girl on her birthday. This generated a sense of respect for the school and the teachers among the students, since they became aware of their birthdays. This may sound very simple, but recognising birthdays in such difficult contexts motivates the girls.

Absence Card

A third card was the "absence card". It was sent to the parents of girls who remain absent for a long time. The intention was to sensitize parents about absenteeism and to motivate them to send their girls to the school regularly.

The card provided information about the exact number of days attended and not attended by the child.

Pravesh Din Card (Enrolment card)

Sindhaj Girl's School was the first panchayat school in the state to introduce 'enrolment cards'. Such cards were sent to the parents of the girls who were in the relevant age group.

For our school development activities, we designed the following rules.

From where will the money come?

- ❶ When enrolling in Class I, instead of *Shreefal* and *Sakar*, cash of Rs.10 to be donated.
- ❷ Profit from the notebooks, pen and other stationary that students purchased.
- ❸ After Class VII, the passing out students shall give a donation of Rs.10 as *Gurudakshina*.
- ❹ Collection of old books from children and selling them to generate money.
- ❺ Donations from retired teachers.
- ❻ Funds raised from the community during the Republic Day and Independence Day celebrations.

Where will the money be spent?

- ❶ Giving prizes or presents to children.
- ❷ For electrification, fans and other school requirements.
- ❸ For study material to needy children.
- ❹ To buy useful implements like a sickle.
- ❺ To sponsor various study visits of the children.

In addition to the above activities, I started a newsletter to disseminate my activities to the neighbouring schools. It was called "*Jharukho*", and I have come to know that many of the ideas have been adopted by other teachers. In my current school (Girdevli) I have started a similar newsletter called "*Manthan*". One idea I have tried here, and described

NANJIBHAI J. JANJANI

8

My parents were cobblers. One of my primary school teachers, Shri Ratilal Rathod, inspired me to become a teacher. Using only government facilities, I managed to study despite severe economic constraints and became a teacher in 1986.

Radio Club at the Narayansarovar Primary School

The village was populated by the Thakkar caste which was relatively better off, and the Harijan, the Bhadala and the Kumbhar castes which showed very poor educational achievements. The registered number of students in the school was 87. The children of the three weak castes received scholarships from the government. Usually the parents were called individually and the scholarships handed over. I decided to make this handing over a public occasion. I invited the leaders of the same communities to distribute the scholarships. This made an impact and within a month, the enrolment increased to 114, the entire increase coming from the three castes.

I have always been fond of the radio. From listening to songs, I had graduated to following the news on the BBC and English language programmes. Once I heard the voice of Dhananjay Vyas, an announcer with Radio Moscow; I also heard a Gujarati *ghazal* sung by Mohammad Rafi (*Divaso judai na jay chhe*). These incidents had an impact on me and I got in touch with Radio Moscow. They replied with a letter, postal stamps, cards and a calendar. The response enthused me no end. I extended my scope to Radio Berlin International, Radio Japan NHK, Radio Deutsche Welle, Germany, Radio Beijing (China), Radio Tehran (Iran), and Voice of America. I became aware of the variety of things one could learn from programmes like 'Russian life style', *Aap ka patra mila* (Received your letter), *Mahila Jagat* (World of women), *Gyan-Vigyan*, *In se miliye* (Meet these people), *Vigyan Jagat* and the various foreign language programmes. I also came into contact with many similar people in India. My students

found the letters I had received fascinating. I started a Radio Listener's Club with 11 friends. I followed this up with a School Radio Listener's Club for my children. We used to have formal listening sessions after school hours. Some of the children received letters from Germany and Japan. The Club became a major attraction in the school, and many children who were earlier not interested in the school now became regular members of the Radio Club. I made a display board on the school wall and began to write down the schedules for the educational programmes of different radio stations. This innovation generated much interest and attracted the children to the school. I had my own radio, a very good one, which I used. Later on, we received another good radio from the state government.

An HM of a school 125 kms away heard about my activity. He quietly took the names of ten of my active children and passed them on to his students. When my school children received letters from the other school's children, at first did not understand what was happening. Later on, they established a good rapport with the other school. Then we planned a joint meeting of the two schools, but a severe cyclone disrupted our plans; this meeting never happened.

Other Activities

I have organised, with the help of an NGO, the Mehsana Madhyasth Samiti, many drawing, *rangoli* and 'good writing' competitions. The NGO's audiocassettes of the various poems from the textbooks, have also been of use. I prepared a display of the stamps that I received from different radio stations and this has been an important educational aid. My school was started on August 18, 1897. Over time, the school had collected some literature, like Pruthviraj Raso, Arabian Nights and very early volumes of *Harijan Bandhu*. I pulled out this neglected treasure and read out excerpts during the prayer assembly. I used Alladin's Lamp and Lavanyavati Dasi as 'serials'

for six months, with the each episode encouraging the children to look forward to the next. This definitely increased the attendance in the school. The children were happy that their school's old collections had been revived. I followed up with a Children's Library called Madhusudan Children's Library, managed entirely by the students.

The old school building, and the furniture, were in a sorry state. The corrosive winds from the sea added to the problems. The building suffered extensive damages during a severe cyclone in 1998. This was an opportunity to mobilise money from a particular community which distributed sweets to my children every year. With six months, the members of that community had contributed Rs.13 lakhs. Along with other donations, this amount resulted in wonderful infrastructure for the school—six rooms, a central hall, toilets and bathrooms, water facilities, benches, tables, chairs, cupboards, play equipment and a compound wall.

I wanted to match the physical development of the school with its academic development. After an in-service programme, I decided to use a variety of puppets. Initially I found it difficult, but with the support of my colleagues and the help of the village tailor who stitched beautiful

clothes for my puppets, I became adept at teaching my lessons and poems with puppets. I converted one of the rooms into a puppet theatre. The puppets have been used for other programmes like a Road Safety Programme of the Lions' Club, and DIET training programmes. I trained the students as well and now they hold puppet shows on important village occasions.

Developing a Centre for Learning the Kachchhi Language

I was transferred to a girls' school in June 2000. In January 2001 we were struck by a devastating earthquake. The school building was destroyed, and we had to use tents to keep the children for almost one year. I was transferred to a neighbouring school in mid-2002. Here I have initiated a centre for learning the Kachchhi language. We have about 103 children. The HM and the other staff members have contributed significantly to running this activity smoothly. Now my additional responsibility as a CRC Coordinator has made me draw upon my radio experience, stamps and puppetry skills in the schools of my cluster. Many teachers have now started to develop teaching tools with stamps.

Other Activities

I have organised, with the help of an NGO, the Mahatma Madhvasathi Samiti, many drawing, writing, and 'good writing' competitions. The NGO's audiotapes of the various poems from the textbooks have also been of great help. I prepared a display of the stamps that I received from different radio stations and this has been an important educational aid. My school was started on August 16, 1997. Over time the school had collected some literature like *Pranavasi Baso*, *Arabian Nights*, and very early volumes of *Hindustan*. I pulled out this material, treasure and read out excerpts during the period assembly. I used Alladin's Lamp and *Harvey and the Magic Box* as stories.

I have always been fond of the radio. From listening to songs I had graduated to following the news on the BBC and English language programmes. Once I heard the voice of Channaray Vyas, an announcer with Radio Moscow, I also heard a Gujarati ghazal sung by Mohammad Rafi (*Dhansu mein jay den*). These incidents had an impact on me and I got in touch with Radio Moscow. They replied with a letter, postal stamps, cards and a calendar. The response emboldened me and I started my steps to Radio Berlin International, Radio Japan, HK, Radio Deutsche Welle, Germany, Radio Beijing (China), Radio Tehran (Iran), and Voice of America. I became aware of the variety of things one could learn from programmes like 'Russian life style', 'Aap ko kaise khat likhna' (How to write), 'Maula Jagan' (World of women), 'Gyan Vigyan' (More these people), 'Vigyan Jagan' and the various foreign language programmes. I also came into contact with many similar people in India. My students

HARSHADKUMAR R. JOSHI

9

I started working as a teacher in 1980. My first village had a population of about 2000, and many educationally backward communities. Although I could stay for only one year here, I made a simple change that ensured regularity of attendance. Children had to help out with farm work. Since I could not do much about this, I proposed to the parents a plan. Helping out on the farm would also have a timetable. I would go with the children to the farms according to the timetable, early in the morning. When it was time for school, I would move with the children to the school. They liked the idea. For instance, when it was cotton picking season, we would reach the farms at six in the morning. Our main job was to collect cotton pods. We would finish by 9.30 in the morning. This activity was limited to the children of the upper primary classes. They enjoyed the schedule. The school got soon crowded with children, and the tradition of full enrolment that got established continues.

Co-curricular Activities at Kharaghoda Junagam Primary School

In 1981 I was transferred to the Kharaghoda school. The village had Patel and Koli families (population of about 3000), and there was a lot of religious activity in the school. I used to go with the villagers to sing *Bhajans* in their *Bhajan* society. The school did not have any musical instruments. My activities made the people realise that musical instruments were necessary for the school as well. They arranged for musical instruments. These proved to be very useful in teaching the children poetry. They also helped me train the children in acting, action songs, children's songs, drama and *garba*. There came a time when the school's show became an essential part of any government organised cultural programme or religious programme conducted in the village. Since I had made the training a regular part of the prayer assembly, the children came to the school on time without any instructions or goading. They used to rehearse on their

own to present such events. Not one child of the school going age group stayed at home.

I personally believe that music is my winning edge. I can play any musical instrument easily. Over the last 20 years, many children have become experts, especially in playing the harmonium, the *tabla* and the *manjira*. The cultural events on national festivals used to be so entertaining and long that they took three hours. We have maintained video recordings of these programmes. Some children of all my schools have won prizes in *garba* and *ras* competitions. I have a huge collection of *ras* and *garba*, welcome songs, *dhun*, farewell songs.

Apart from music, *Vyayamshala* is a hobby. Even as a child I was fond of exercise and discipline. I have been an administrator of a school of exercise for about 30 years now. I take the children to this school every Saturday and they practiced various aerobics exercises, indigenous exercises, and also used the equipment available there. I give gram (*mung*) and *jaggery* as snacks.

The school did not have a single tree in 1981. There are about 30 huge trees now. Most of them are *neem* trees. The children even today prepare the extract from the new leaves of *neem* in the month of *chaitra*, and drink it. This is supposed to increase the resistance power of the human body. They collect the seeds, prepare oil and sell it. Thus the school has created a source of income also. (Note: The seeds and oil are sold to an Ahmedabad based company, Nimka Oil.)

Working for the Community

Most of the villagers used to work in salt production units. These people were badly affected by skin diseases. With the help of the school children, I prepared nice footwear with cushion-like soles. These handmade shoes were given to the parents of the children studying in the school. The shoes proved to be a blessing. Such activities helped me in winning their trust and affection. Fortunately, shoe making

became a tradition with the passage of time. The community learned to make the shoes I had designed, on their own.

In the school, using locally available resources, we undertook a project to demonstrate how salt is prepared. When we presented this project in a science fair, we won the first prize. First we gathered saline ground water in a tin. The tin had a hole at the bottom water through which the water could flow on to an iron plate with a wide surface. Alum was added to the water to gather the impurities. The water was kept in the sun for one week. It evaporated, leaving a thick viscous layer of salt. This was cut into pieces. The next week we had pieces of salt ready with us. Through this activity we also covered information on how bromine, magnesium and sodium bicarbonate are made. This learning was then extended into symbolic representation like 'NaCl' (sodium chloride or salt).

During the monsoon, water from a few rivers used to gather in our desert, stopping all transportation to and from our village. The desert would become a marsh with pockets of deep water, for long periods of time. Since this was a hazard, we trained children in swimming and rescue. There have been instances of our trained school children saving drowning people. Such activities have been linked to lessons in environment and physical education.

Physical Development at Shri Raghuveersinhji Primary School

In 2001 I was transferred to another school. This place did not have a single tree. Today there are 50 trees and a garden

with a variety of flowers like jasmine and *champa*. The special feature of this garden is that we have cultivated many useful herbs in this garden. We have *vamjo* used for diabetes, *shankhpushpi* for enhancing brain functioning, *asopalav* and *kel* for auspicious occasions like wedding, *garmalo* for fever, *ardusi* for coughs and aloe vera for burns. There is a drip irrigation system in the garden. The students of Classes V to VII are so familiar with the herbs that they know their names and medicinal uses. They use this knowledge whenever needed. We plant vegetables also which children eat quite often.

Navchetana Shibir and Art Excel Course

I have devised an all-round training in excellence programme for children in the 8 to 15 age group. This was motivated by the complaints I had collected. "My son does not move away from the television." "My daughter hates study. If you ask her, she gets angry." "My son does not put anything in the right place. If you say something, he disobeys." "My son does not like any vegetables." The pressure from the parents for examination results creates a negative impact on children. Otherwise, they are an endless source of energy and enthusiasm. My objectives in the course are to encourage their joy and enthusiasm; guide them towards creative activities; sensitize them to good and bad habits; develop their self-confidence and to teach them breathing exercises and yoga. These six-day courses have helped many children in their development.

I began my career as a primary school teacher in 1979 at the Bavli Primary school, Dhrangadhra, Gujarat. Here I tried to develop the school with just student support. I planned a small cultural programme and told the children about the needs of the school. I suggested that if they could contribute one-day's pocket money once a month, it would help to the school. The students happily accepted the suggestion. We proposed an additional scheme: students of Classes I to IV would donate 25 paisa and Classes V-VII students would donate 50 paisa every month for the school. These amounts were small, but the idea was meant to show an example. The amount started to grow into a good sum, and the money was used regularly to pay electricity bills, buy tables and chairs, and paint the door and windows of the school. The parents were attracted and their support was assured.

Next we prepared a list of the former students of the school whom we knew were doing well. We identified their birth dates from the registers of the school. We invited them to come to the school on their birthdays. They were welcomed and wished with a small bouquet in the prayer meeting. Then we talked about the needs of the school. These alumni have been very helpful.

Establishment of a Separate School for Girls

In 1984 I was transferred to the Vadgam Primary school, in another *taluka*. At that time, due to a shortage of rooms, there were two shifts in the school. I wanted to do something about this problem but it was not possible immediately. With the help of the other teachers and the HM, I made the school participate in a Best School competition in 1985. We invited the leaders and the other educated people of the village to the school and explained the rules of the competition to them. We received active support from the villagers in painting the school and adding some facilities. The villagers also mobilised some money for wall pieces, maps and charts. The school won

the competition. This recognition helped increase the motivation of the villagers. Immediately, we presented the idea of a separate school for girls to the Chairman of the District Education Committee. The *Gram Panchayat* then got involved. A girls' school was started in June 1986. This also posed a challenge to us to do something for the development of the new school.

My colleagues and I prepared a list of the girls who had quit education because of coeducation in the higher standards. We met the parents of the girls, and discussed with them the advantages presented by the girls' school. We also held a meeting of the parents of girls who were not enrolled in the school at all. This campaign worked, and within a few months, the number of girls regularly attending the school went up from 145 to 240. This momentum was maintained the following year, and in a few years, girls' education disappeared as a problem. We monitored attendance very strictly, since this is a better indication of a school's performance than enrolment. Among the Thakore community especially, enrolment in Class I used to be high, but that was it. Absenteeism would undo all the initial good work. We mobilised the community leaders for attendance. I would like to acknowledge the role of Mr. Chonda Chhatrotia, a local leader of the community, without whose help it would have been impossible to regularise attendance and to bring back those girls who had left the school. A teacher's motivational efforts have to be supplemented by a local leader championing the teacher's and the school's cause.

Change in the Timings of the Girls' School

Because of the shortage of rooms, the girls' school worked from 7.15 to 12.00. However, the older girls often stayed back at home in the mornings for household jobs. We passed a proposal to change the timings of the school and give the afternoon shift to the girls. The *Gram Panchayat* passed the resolution and we submitted it to the District

Education Officer. The shift timings were changed. This single act has helped a lot in regularising the attendance of the girls. We followed this up with meetings with parents of those children who were showing signs of irregularity or weak performance. This developed live and intimate relationships with the parents; they felt happy about our efforts to reach out to them. It inspired them to pay more attention to attendance. Our efforts have resulted in the institution of an annual parents' meeting, during which suggestions for the year and feedback are gathered.

Learning through Teaching Aids, Games and Other Techniques

Eight crucial years of a child's life are spent in elementary education. To make the primary level methodology interesting, we use activities, self-made teaching aids, drawings, charts, maps, flash cards and other equipment. In addition to the usual games, stories and songs, picnics are used as an educational tool for lower primary children. The students learn about the crops and the plants during farm visits or nature walks. They enjoy the outings. Similarly, they are also taken to visit the post office, the local bank, a cooperative society, and the *Gram Panchayat*, so that they can learn about the functions of such bodies.

Our students are also encouraged to appear in external examinations. Every year, the good students of Class V are made to appear in examinations for scholarships and in the Navodaya Vidyalaya entrance test. After school hours, extra classes of about 90 minutes are organised in the school for the willing students.

Mathematics: Teaching fractions in Class IV

When I noticed that the students found the topic of fractions very difficult, I decided to do some research. Fractions, smaller and bigger fractions, addition and subtraction of fractions, were my concerns. I took a pre-test, and divided the class into two groups, each comprising 17 girls.

At the outset, I confirmed that the girls knew the concept of numbers well. Then, giving real life examples, I tried to establish the concept of fractions. Like, if there is only one apple, how it is divided among the children, with a single piece becoming smaller than the whole fruit. The

next step is to use different charts to teach the formal notations for fractions. Along with this I also explain how a fraction is read. The same method is used to teach $1/2$, $1/3$, $1/4$ and so on. After this, I give an idea of the figure in the numerator and the figure in the denominator (*ansh* and *chhed*). For teaching the difference between smaller and bigger fractions, I use a ruler-like strip with marks on it. Different strips indicate different proportion with coloured marks. For teaching addition of figures with the same *chhed*, I have made squares with two lines crossing each other in the centre, making four squares within it. Differently coloured inside squares are shown and then the answer is shown in the form of a third square. The same system is followed to teach subtraction of fractions.

Some of the teaching aids I have made with the help of my assistant teachers and community cooperation are: Place value game: to teach the concept of place value in Classes III and IV.

Educational ludo: to teach the Gujarati alphabet. Educational elephant and Number wheel: a toy to teach the identification of numbers from 1 to 9 and 0.

Gujarati alphabet board: Gujarati alphabets are written on a hardboard with oil paint colours. This board is used to play many games and teach alphabets in a joyful manner.

Magnifying glass: we have made magnifying glass using a bulb and the bottom glass of a jar to teach science in Class V.

Marble stand: We have made a big marble stand using big plastic marbles. Students can learn numbers 1 to 100 using this aid.

Along with Manjibhai Prajapati, a teacher who is well known for designing and making educational toys, I have co-authored two books on TLMs. These books deal with the teaching aids and games that are useful in teaching mathematics and Gujarati in a joyful manner. These books have received a good response from the teaching community.

Support from the Village

The village community has seen my efforts and has supported me with resources. The two Vadgam schools now have 16 rooms in the same premises, two rooms for the mid-day meal scheme and a huge compound, protected

Primary School Teachers' Innovations: First Yearbook

I have been working as a teacher in the Maroli primary school, Valsad, Gujarat, since 1975. From 1971 to that point of time, I had worked in two other schools. In my first school all children belong to the Warli tribe. There were 35 enrolled children, of whom about 10 to 12 attended regularly. My HM and I visited the parents, but no amount of persuasion would work. One day I noticed that some programme was going on in front of the school. A black magic player was performing tricks. The villagers had a lot of faith in him. I decided to take this as an opportunity and arranged a meeting with that man in private and requested him to ask the villagers to send their children to the school. His appeal affected the villagers greatly and they agreed. However, they put two conditions: their children should be allowed to graze animals in the evening and they should be allowed to bring their younger brothers and sisters with them. I accepted these conditions and this increased the number of students. Once the beginning was made I used various joyful methods like games and songs to retain the children. This helped a lot to increase the strength of the school. Soon, regular presence in the school touched 60%. I worked here for one and a half years.

In the school where I am working, it took me five years to solve the problem of non-enrolment and to bring down dropout to near zero. I tried to combine educational messages with the people's religious activities. The *Swadhyay Parivar* was active, and I asked them to include educational messages in their activity. I did the follow up, and this worked. The school building was in bad shape and all four rooms had almost collapsed by 1979. At that time, if the community paid 25% of the budget, the Government used to give the rest. We needed Rs.40,000 for four rooms. Firstly, we formed a committee of parents and went on a mobilisation drive. We got Rs.20,000. It was not possible to get any more money from the villagers. Then I had an idea. Movies in those days were popular. We discussed the idea of arranging a few shows of a movie and it was accepted with some protest. We arranged four

shows of the movie in the village and that fetched us Rs.12,000. Our school is on the seashore, and when the fishing boats were pulled into the sea after the monsoon, each boat owner paid Rs.300. We did this job with our students. This created an uproar in the village, but we gathered Rs.6,000. Thus, four rooms were built.

There was no pre-primary education in our village. I formed a committee with the people, and for the Rs.15,000 that were needed, I arranged a "lucky draw". A few people disagreed and protested. However, we did the draw successfully and a good deal of money was generated for a nice shed. We decided to charge five rupees per child as fees and pay a teacher from that amount. The beginning was very good, but we noticed that 50% of children stopped to attend the nursery within six months. The reason we discovered was that people were not able to pay the fees. As a solution, I got a trust registered for grants from the Social Welfare Department. I went directly to the state's Head of the Social Welfare Department and explained my predicament. A grant was sanctioned in fifteen days. That nursery is working even today.

I have been teaching Class VII for 27 years. I believe in identifying the weak students and giving them remedial teaching. I use story / dialogue forms and drama to teach children who find their regular subjects difficult. I have also made a number of TLMs to solve the problems of learning basic math at the lower primary level. Some of the toys are described below.

Educational Television

This television covers 80% of Mathematical abilities of Class I.

Raw material: A big box, gelatin paper, tracing paper, transparent paper roll, four bulbs, a board with six switches.

Method: Take a box that is open from both the sides. Fix tracing paper on the front side and then gelatin paper

on it. This will make the screen of the television. Divide this board into four parts with the help of a board. Fix one bulb in each box. Place the paper rolls in such a way near the screen that they can be rotated.

Use: When one turns the bulb on, the picture in that box will emerge on the screen. In the same way all the boxes will show different pictures. For e.g. If one wants to teach the concept of zero, when the first switch is turned on a picture with three birds on a tree will emerge. Beside this there will also be a figure of 3. Then turn the first switch off and the next one on. This next picture will show two birds on the tree and figure 2. That means one bird has flown away. In the third box there will be only one bird when the same method is followed. Similarly there will not be any bird on the screen in the last picture and the figure will show zero.

Shadow Puppet

This article can be used for all subjects extensively.

Raw material: Two 5x 80 cms wooden sticks, two 5x 60 cms wooden sticks, one metre white cloth, a string, ms paper.

Method: Make an 80 x 60 cms frame out of the wooden sticks and tie the white cloth on it. Tie a string horizontally behind the cloth. Make the screen stand with the help of a stand. Make cuttings of animals, trees, birds etc. out of ms paper.

Use: While using this instrument, it is better to place it near a window so that the natural light can help. If you want to show an elephant on the screen, put the cutting on the string. You will find the shadow of an elephant on

the screen. Now if you want to say $3+2 = 5$, move three elephants from one end and two from the other. They will gather in the middle and make 5. This method can be followed to teach any other suitable concept.

Educational Tree

This also can be used for any subject.

Raw material: A piece of hardboard of 60x 30 cms, ms paper, velcro strip.

Method: Cut the hardboard into the shape of a tree and paint it. Paste velcro strip on the branches. Make leaves, birds and fruits out of ms paper and paste velcro strip on them.

Use: As velcro is used, the birds, fruits and leaves can be manipulated as needed. This particular toy has been of great interest to the children.

I have made many other toys to teach place value, addition of single digit numbers, using just hardboard and paint. As our school is near the sea, we easily find a lot of sea shells. We have made various charts out of these shells. Just to give an example, we have made a chart which helps in teaching identification of figures from 1 to 10. Write the figures on one side of the board and stick shells before them according to the figure. This kind of chart can be used to teach numbers up to hundred. It also helps to teach the concept of descending and ascending numbers. The same method can be used to teach mathematical tables. In addition to these, we have also made puzzles dealing with the organs of body. In this game, the organs of human body are drawn on the pieces of hardboard and they are used as a puzzle game.

PRERNA A. MEHTA

I started my career as a teacher in 1983. After working in some schools, I was transferred to Baladiya village of Bhuj taluka in Kutch district. I consider this the start of my real work. When I started to study the village, which was dominated by members of the Patel community, I realised that most of the people were elders, children and women. The youth and the earning generation of the village had migrated to countries like Kenya, Mauritius and the United Kingdom. For a village with a population of 2500, there were six bank branches. The village youth living abroad used to come to the village in December-January. They used to give the girls studying in the school snacks and fruits everyday. The school building had two floors, the upper one for the girls and the ground floor for the boys. But educational activities were not satisfactory.

Keeping the girls from the *Vadi* (farm areas and outskirts of the village) in the schooling cycle was a problem. I found that the girls were very irregular in their attendance. Drop out of girls of Classes V-VII was also high. The academic performance of these girls was also not up to the mark. The problem of absenteeism was the root of all these problems. I realised that though initial enrolment was good, most girls did not complete the primary education cycle. I planned a project of three years and implemented it in four phases. The idea was to start extra activities in a planned manner.

During the first one and a half months I started co-curricular activities in classes V to VII in the evening from four to five o'clock. The girls used to collect waste material, and many things were made from these articles. Exhibitions of these handicraft articles were held. These articles were distributed in the neighbouring schools. Then painting was taken up. The girls used to paint handkerchiefs with fabric colours. Clay pots decorated with colours, *aabhla* (small decorative pieces of mirror), painted clay pans, baskets from plastic wires, wall-pieces, embroidered cloth, and decorative articles from paper, were the outputs. Exhibitions of these articles were held

and from the profits, the expenses of manufacturing such goods were managed. These activities attracted many girls to the school.

In the next one and a half months, the emphasis was on 'reading'. I used to identify the girls who were weak in reading; the responsibility of helping them learn was assigned to the better girls of the same class. This made the weak girls take an interest in reading. They used to read the textbooks of their class, storybooks, books of the lower classes, and reading cards. I assessed that 98% of the identified girls developed their reading competence to satisfactory levels because of this activity. Importantly, the activity was built into the timetable, so that the seriousness was there.

In the third phase, the girls undertook activities like cultural events, celebration of national festivals, songs, stories, prayers, *bhajan* and *dhun*, welcome songs, elocution, cleaning activities, decoration activities etc. This also helped in increasing their interest in the school. This directly helped reduce absenteeism. In the fourth phase, they were given some understanding of agriculture, irrigation, tree plantation; they were also taken on farm visits for observation studies, and picnics. During such activities or visits, the girls used to sing the songs they had learned. Simultaneous progress was observed in their academic performance also.

As a result of this four-phased planning (locally relevant activity followed by academics, then activities once again followed by academic activity), the interest in studies increased as the girls could see the relevance of what was being done to their own culture, lives and societal expectations. Because of all these activities, the village also took notice of the school. The participation of the community increased. Enrolment increased and wastage was controlled. The school now started to receive physical facilities from the community. Over a period of three years, all these activities came to be seen as necessary components of schooling itself.

I joined Bhuj Darbargadh Girl's School in 1996. I received an order from the DIET to attend a training camp. It gave me an opportunity to discuss many educational issues with other teachers. During such conversations, the problem of slow learners and clever students came up. I also read an advertisement put out by the NCERT in a local newspaper. When I went to ask for the details, I was told that it was meant for researchers and not for me. I requested them to give me the information booklet for one day. I collected the book from the DIET and read it. This inspired me to work on the problem of weak students and clever students. I worked on the idea and was recognized by NCERT for this work.

When we talk about education for all and equal opportunity for all, we have to come to terms with the fact that in rural situations it is difficult to come across children who are equally good at Math, language and environment. I started with some research on the thinking of the parents and the teachers working in different schools in Classes I to V. The result was an analysis of the problems the children of different categories faced and the possible solutions. The study of the responses of the parents made me realise that they have many expectations. The weaker children remain so much under the pressure of the smart students that they finally fall into the category of wastage and stagnation. Along with the attention to the smart students, the negligence shown towards such weak students came out to be very strong. The findings of this study proved helpful to me and to my school as well as to other teachers. At least there is a willingness to adopt remedial teaching approaches. The study has been used to develop remedial inputs for weak students.

The Earthquake Experience

The earthquake that struck my district in January 2001 was a nightmare for all of us. I was also injured. I resumed duty in June, but found that children were unable to come out of the shock of the quake. Their panic inspired me to do something to help them come out. I met teachers in the nearby schools and started my work with a small amount

of Rs.2000. The schools were run in either tents or prefabricated rooms. Some acquaintances and academic institutions came to my help when they realised the value of this work for children. I collected some money. A doctor, Dr. Urmila Mehta, regularly examined the children. I started a variety of activities in the various schools; these included elocution, essay writing, good writing and drawing. Children's songs and stories were used abundantly in the process. About 15 well known people helped bring children out of their trauma. When the situation was so chaotic, these activities proved to be very helpful and soothing. They helped to recreate the environment for an educational purpose.

Bal Killol and Bal Kalrav

During a training programme at the DIET, an anthology of children songs written by a teacher poet, Bhagvanji Pithad, was released. This incident inspired me to write children's songs. The extensive experience of dealing with children came in handy. The motivation was so strong that I wrote 31 songs in three days. The next question was about the relevant pictures. My son helped me here. We prepared pictures relevant to the songs. Thus, the book "Bal Killol" was prepared. I presented the work to the Gujarati Sahitya Akadami, which sanctioned a support of Rs.5000. I added Rs.2500, and published the book. The songs have become popular among children. Inspired by the success of the first anthology of children's songs, I wrote another book *Bal Kalrav*. The book has patriotic songs for children. The income of the first book was utilised to meet the expenses of the second book.

These two books gave me the confidence to prepare an anthology of the stories of national heroes. I prepared speeches of about five minutes each on the life of national heroes like Subhash Chandra Bose, Rabindranath Tagore, Indira Gandhi and so on. I am planning to prepare a special section on well known women like Kalpana Chawla and P.T. Usha. I have collected material on these figures, and hope to enrich my teaching through such self-driven efforts.

BALDEVBHAI N. PANDYA

13

I started teaching in 1984. After about two years, I realised that no teacher was ready to serve in another nearby school, Karshanpura Primary School. The reason was that the area was dominated by socio-economically and educationally backward communities like Thakore, Rabari, Vaghri and Raval. The school had poor facilities and was not connected by bus. A single teacher in the school taught Classes I to IV. I decided to take up the challenge of working in this school.

Community Mobilisation

There was a forest of *Babool* trees near the school at Karshanpura. I sought support from the *Gram Panchayat*, got the forest cleaned and the lake filled. Whatever work was left was completed with the help of the village youth. We planted many *neem* trees here which provide shade today. The area serves as a temporary shelter for bypassing labourers. Since there were only two teachers and four classes, multi-grade teaching was inevitable. Handling two classes at a time caused many problems in completing the syllabus, maintaining discipline, and organising cultural activities. During the monsoon, the situation was worse, and the children had to be shifted to a temple nearby. More than one class had to sit in one place.

When I became in-charge of the school, the villagers asked the District Education Committee for Class V. The office was forced to give an additional class, but an additional teacher was not provided. I had to run five classes with two teachers in all. Such a difficult situation compelled me to find out some solution, and inspired me to develop teaching learning material that was suitable for my situation. Once I started in this direction, I got more and more new ideas. Some of these are described below.

Teaching with a Model of a Mountain

While learning different concepts in geography and environment, the children used to ask many questions.

From where does the water in a river come? Mountains look like what? I always felt the need to satisfy the curiosity of these children. Naturally, taking the children on a tour to visit such places would have been an ideal way to teach these concepts. This was not possible because all the children were from poor farm labourer families. The parents could not afford any travel. Secondly, whenever I drew a picture of natural phenomena on the board, children saw it with great interest and some of them tried to copy it into their books. I felt that if some models could be made, these could give children a better idea of the concepts.

I was thinking about the best way to make the model, when the villagers performed a religious ceremony. For this they had prepared some bricks. These bricks would become sacred after their use in the religious ceremony and therefore would have to be dropped into a river after the ceremony. The villagers were preparing to load the bricks onto a tractor and take them to a nearby river. I approached the villagers and explained that once they dropped the bricks in the water, they would be gone for ever. But if they gave the bricks to the school, we would ensure that the bricks would be used for a noble purpose; they would also remain as a memory of the religious ceremony performed by the villagers. My appeal overcame the villagers' religious beliefs, and they took the bricks to the school.

Using these bricks, I made a huge hollow mountain, leaving spaces in between. The waste material of the school was used to stuff the empty space in the structure. When it was filled, I made a clay layer on the entire structure and gave it the shape of a mountain. Then I placed PVC pipes throughout the structure (for water) in such a manner that they would remain hidden. Then by cutting and carving the structure suitably, I prepared models of different phenomena/ natural structures like rivers, streams, caves, forests, ravines, stones eroded by water etc. This was in the year of 1995.

Over this clay mountain, I added a layer of cement. Now it was strong enough for children to climb over it and move around. I have tried to make it a comprehensive model in the sense that on both sides of a river, I have indicated trees and forests, and have also tried to show how a river finally meets the sea. The sea has models of marine creatures.

Other TLMs

Karshanpura Primary School was a small school and had only two teachers. The responsibility of teaching all the five classes was too much, and whenever some other work came up, the performance suffered. Children who were told to work on their own did not take much interest in it. In order to generate interest among them, I began to give them assignments like collecting feathers, making pictures, making toys from clay, and so on. When children were given such assignments, they found it very interesting and remained occupied. The experience of collecting or making such articles exposed them to learning. This was reflected in exercises given to them to draw pictures or write about the material. They tried to recall whatever they had done; more importantly, their writing tended to be broader in coverage.

In a science fair (1998), we presented a model for textile printing and TLMs useful in classroom teaching. Many educationists appreciated the exhibits. We received prizes, and the appreciation added to my enthusiasm. Such encouragement expanded my confidence and interest so much that today I have an exhibition of TLMs at my residence, open to anybody who is interested. I have prepared this exhibition cum collection on my own and using my own understanding.

Comet TLM

In the year 1998, the newspapers had given wide coverage to the appearance of a comet. All the villagers and children stared at the sky to witness this incident. But unfortunately this phenomenon could not be observed. Children were disappointed by this. I decided to do something. I thought of preparing a model that shows this natural phenomenon. I worked on the idea and prepared a working model to show this phenomenon. The satisfaction that I saw on the

face of my children when they watched the model showing how this natural phenomenon works, made me happy. Meanwhile our school was supposed to participate in the science fair. I thought the model which has satisfied the curiosity of my students should reach other students also. I sought oral permission from the DIET Principal and exhibited this model in the science fair. People welcomed it so well that the newspapers gave it coverage and more and more people visited this show.

The Best Use of My Skills

Magic shows and puppetry are my areas of interests. According to me, the way I used my skills for educational rehabilitation of the earthquake affected children of Kutch has been the most satisfactory experience for me. After the devastating quake, the DIET had prepared teams of teachers that were supposed to work for rehabilitation. We were given Gandhidham taluka. When we went there, the school that was allotted to our team was Antjan Primary School. Not a single child was present in the school. The HM and teachers informed us that the children were so terrified that they were not ready to come to the school. Something stronger than the fear of children and parents was needed to bring them back to the school from the queues for relief material distribution.

We went to the places where such material was distributed and announced that the school was going to hold magic and puppet shows. There were only a few children on the first day. But I did not lose courage. We persisted and in three to four days the presence reached 90%. Gradually these shows became so popular and effective in bringing children out of the traumatic effect that teachers from the surrounding schools began to invite me to give performances in their schools. I responded, and covered seven schools. The success of these shows continued even after the rehabilitation work was done in Kutch.

The Mahant of a temple near my school organises yoga camps for people free of cost. I have been helping him and brought the yoga activity into the school in 1986. When I wanted a permanent exhibition of my TLMs, I hired a room. The Mahant came to know about this; he appreciated my commitment for the cause and spared a room for my exhibition. This exhibition is now known as *Datt Nivasi Pradarshan*. Teachers interested in TLMs visit

the exhibition and make TLMs on their own. If needed, my help is also available. The TLMs include a variety of items made from coconut shell, puppets, sculptures and toys made from waste material. Some of them are:

- **Aakash Darshan: Space View.** It shows the planets, the sun, the moon, the eclipses.
- **Tarang Ullas Sadhan:** Identification of sounds and concepts of long, short, thin and thick.
- **Magical glass:** Information on figures 1 to 10.
- **Bahurupi sadhan:** Tool to teach letters and numbers.
- **Puppetry:** Puppets for language and environment: 40 pieces.
- **Teaching through masks:** Numbers 1 to 20.
- **Our Body:** A model of the human body, with all the parts detachable. The children can themselves arrange all the parts like hands, legs, eyes, nose, ears.
- **Crops of our region.**
- **Magic boxes.**
- **Identification of shapes, colours, birds, pictures, flowers, currency and grains.**
- **Identification of the month.**
- **Puppets of fruits and vegetables:** 30 pieces.

- **Sound identification machine:** This tool has five pieces. All the five tools produce different kinds of sounds. Children can play with them producing different sounds and learn concepts like sound, vacuum. This tool is made from the empty coconut shells. The shells are cut from the centre into two parts. Small iron balls of bicycle bearings are put inside the shells and the two parts are sealed again. An artistic touch is given on the outside surface by covering it with plaster of paris and creating some designs on it.
- **Place value tool:** This tool is made from an old window. There are four lines of nails in the tool. There is a pipe fixed on it and a slate is made above the board. Now a figure is written on the slate. This helps Classes I and II children to understand and remember the figures up to a thousand.
- **Movable Bal Mitra Varg:** Painting is my hobby. Whenever I thought of a *Bal Mitra Varg*, I felt that it should be in such a form that it can be taken to any place. From this I got the idea of preparing a *Bal Mitra Varg* on canvas. I implemented my idea on a canvas of 20 metres.

I started teaching in 1971. My guiding principle has been one of Mahatma Gandhi's sentences: "*Education, real training, lies in the exploration of the true qualities of a child.*" Children are very active and so conscious efforts have to be made to keep them connected to the activities that are going on in the classroom. At the same time, outside the classroom they need warmth and care. The latter have made it possible for me to handle some very serious dropout cases: like a girl with a chronic illness for whom I arranged medical treatment, and arranging for small financial assistance to many needy girls and boys. I have found if warmth is shown and personal care taken, dropout is easily solvable.

Product-Oriented Activities and Leisure Camps

In my school I emphasise product-oriented creative activities and involve my students in activities like making doormats using coconut skin, brooms with coconut leaves, cloth mats for sitting on floor, embroidered small bags, garlands, wall pieces, flags, clay models of animals and many other things. When we display them, we try to generate some income by selling the items. This gives children a focus and helps them tie up the activities with learning in the school.

During the academic year, children find some leisure. I believe that children should join a profession only after they finish their study, but spare time like weekends, public holidays, and vacations, should be used to develop some skills. The idea of a leisure camp came to my mind when I used to observe children doing many activities during the recess. I organised a 2-day camp for children. My HM and colleagues supported me. The total number of participants was 40. The children were studied and divided into teams according to their interests and their methods of working. On the first day we had a Mass-Meal and a Village Cleaning programme. During the Mass-Meal, all the children sat in a circle and shared their food with each

other without any arguments. Next day all the children were left absolutely free to do whatever work they liked and in whatever manner they liked. For example, some of them began to paint, some of them were carefully observing plants, some were busy playing something and some were lost in their musical instruments. At this juncture, some experts and learned individuals were invited to watch these activities. They helped us identify the special gifts of various children and provided us feedback on what to develop in each child. This experiment proved successful and gave us insights into the meaning of total development of the child. This would not have been possible within the four walls of the classroom. The feedback was communicated to the children in order to help them pay more attention to their strengths. We call this personalised sensitisation of the students. Some of the students have become professional singers or artists. Others have developed in other directions, but the feedback from them has been very good. The experiment has been repeated many times.

Making Learning Interesting

I believe in having attractive classrooms. Keeping the textbook content in mind, the rooms are decorated with charts, paintings, rangoli, mathematical tables, projects, models of sentences and other decorative pieces made out of waste material. Thus I try to develop the spirit of learning new things and frugality.

Antakshari

A fast and effective way to learn is through rhyme and verse. The children remember things very easily if they are taught poems, prayers, and lessons with music. So we organised a programme of Antakshari (game in which the ending syllable of a song is used as the starting syllable by the next participant). We included in this programme songs, poems, folk songs, *bhajans*, with the

view of improving the language skills and vocabulary of the students. We test learning levels after any such activity to assess its effectiveness.

Dramatisation

I make children play roles like Rani Laxmibai, Sardar Patel, Jawaharlal Nehru, Subhash Chandra Bose. First I give enough information about the character that is to be played. Once I feel that the actor child has enough information about the character, he or she is introduced before the class. Now the other students of the class ask questions and those have to be answered by the player. Whenever it is possible, dramatisation of lessons is done; for instance, a lesson like 'Jivram Bhatt' becomes very interesting in a drama form.

Projects

I frequently undertake projects so that children can understand things clearly and practically. I have noticed that during such projects students learn about many small and trivial things that nonetheless create a great impact on their learning. An illustrative list of projects which have contributed much to learning is given below.

Primitive man- caves and weapons	Class III
Agricultural crops	Class VI
Currency	Class VI
Kerala	Class VII

Pollution (Land/Water/Air)

Class VII

India (States, cities, rivers)

Class VII

Balanced diet

Class VII

National symbols

Class VII

Malaysia's rubber business

Class VII

The irrigation plans of Gujarat

Class IV

Teaching Aids

I also make and use TLM to explain concepts/themes. Some of them are listed below:

Periscope and Kaleidoscope (well known instruments); 'The longest hotel' (multiple reflection, with two mirrors facing each other, toy tables and chairs); Solar system model with wire, cardboard and thermocole balls; Mathematical boards, with the correct answers attached to small bulbs which light up when pressed; irrigation system of Gujarat, which works on a similar principle of using lighting-up bulbs to identify various dams and schemes and rivers.

I have tried to make children more and more active through these methods. Innovative TLMs, methods like drama and projects, make the learning process interesting. Such an atmosphere does not permit the children to leave the school. More importantly, a teacher should know the special needs of students, and students should be made aware of their strengths, so that all round development of children results.

I was born in 1960 in a poor family in Dahod, Gujarat. As the financial condition of my family was not good, my parents could not receive any education. However, they put me in school. I completed my teachers' training course in 1982, and in 1983 joined a school which had four standards. The village was very backward, socio-economically and educationally. I thought it would be a good idea to make school a hub for cultural activities in order to create a sense of ownership amongst the villagers. I started interacting with the people and mobilised the support of some farsighted people of the village. We gathered a small amount for buying musical instruments. These instruments were used for different activities in the school, and this changed the school's atmosphere. Word spread and attendance improved. New enrolments took place and within two years we had to introduce the upper primary stage. This move was appreciated by the villagers. With the help of the HM, I started celebrating national festivals successfully by inviting the leaders of the village. I also attended social functions of the village community. These activities helped a lot in improving the presence of students. The school was extended up to the seventh standard. In 1986 the R.S. High School was started by an educational society, since the trend towards higher education had become clear by then.

In 1987, I was transferred to my home village. One of my primary school teachers was now the HM. The school had five grades and three teachers. My old teacher fixed Class VII as a target to be achieved. In the beginning, it was very difficult due to the very small number of students. But like I had done in my earlier school, we started many cultural activities with the help of the children, maintained regular contacts with the parents, and celebrated national festivals through local leaders. Our perseverance paid off and soon we had seven grades, seven teachers and seven rooms in the school.

My goal was to make my village an "educational place". With the help of our HM, we got a trust registered,

the *Adivasi Pragati Kelavani Mandal*. I was elected as the President. My aim was to bring about an educational revolution in my predominantly tribal village. We built a high school, since Class VII graduates needed to have access to further education. With the help of my staff and the people, we established a fund of Rs. 50,000. We trained our school children for various competitions. As a result some of our students acquired first and second prizes in sports at the state level. I succeeded in hosting the *taluka* level and the district level sports festivals. All these activities and efforts gradually increased the people's interest in education and developed an identity for the school and the village. Three new schools with primary classes were also started in the village as extensions of the original school. The school that had only 4 teachers in 1987 has 26 teachers today and provides primary as well as higher secondary school education. The variety of co-curricular activities and entertainment programmes in the primary sections were very useful in attracting the mothers; my aim of improving the enrolment and the attendance of the girls of the village was thus achieved. Gradually, the young people of the village became familiar with the activities done by the students of the Primary School, and they helped in the enrolment programme, the celebration of religious festivals and organising Gandhi *Jayanti* functions.

Social Activities

Along with educational activities, I also concentrated on social reform. We used to arrange meetings and discussions with community leaders, young people, employed people, on social ills. We have had reasonably good success in controlling some practices like obligatory gifts, dowry and Kanyadan. I have also been actively involved in the Primary Teachers' Loan Co-operative Society, since this way I can also serve the teaching community.

I started my career as a primary school teacher in Bhanpur Primary School, Zalod, Gujarat, in 1964. I found the presence of children in the school very poor. After discussing the matter with the villagers, I realised that they blamed the teachers who were themselves irregular; the parents wanted their children to work on the farms and in homes. Sometimes, superstition came in the way of further education. Firstly, I sought support from the Police Patel and other influential people of the village. I visited each household of the village. I stood by them on happy and sad occasions. I started to take the children on short excursions to places like the river, farms, another nearby school; I used such excursions as instruments to teach specific subjects. This increased the attendance and regularity. I had to take some liberty in the timings also. It was not possible to maintain rigid timetables and strict rules of attending the school and learning subjects in the classroom. The tribal community was severely deprived and children had to help their parents out. Whenever children had to go out of the school during the day, they would come to my place in the evening and I used to teach them there. Slowly children more than 14 years old also started coming to the "evening school" at my home. I used to tell them some stories, and also tried to wean them away from liquor and other addictions. The community's respect for me went up. Within a year about 15% of the village's children had started coming to school regularly. This situation rapidly improved, so that by the time I left in 1968 for my teachers' training course, a lot had been achieved. The parents were more aware, and they briefed the new teacher on what had been done and what they expected from him. The teacher responded positively, the school progressed to Class VII, and now there is a secondary school as well.

After my training I worked in Nani Sanjeli for ten years from 1970. This tribal village had 1200 people. Alcoholism and superstitious beliefs were rampant. Every year there were a couple of murders. The school used to be

closed for months at a time. The teachers had left in disgust, and the village community despised the teachers. I started by taking the *Sarpanch* and Police Patel, and a few respected elders on my side, exhorting them to work for the cause of education. The people were very aggressive, but I continued my work without wavering. When people observed my calm behaviour with the children, they changed. But the children's presence in the school was not regular. I studied their likings; they liked to wander and bathe in the river. I started taking them to the nearby river, farms and hills for excursions. During such walks, I used to accomplish the teaching work I wanted to do without making them realise that they were actually learning some subject. I used to ask them questions and they gave answers. Real objects were used to teach concepts of environment and mathematics. Oral expression was an important goal. Now the question was about writing ability. For this, I used to take small opportunities to introduce the alphabet. I used flowers, fruits, grains, seasons to introduce letters. Thus, teaching of all subjects used to go on simultaneously and in a natural manner.

I made a timetable.

- ☉ Every Friday, we used to visit the river for a bath (cleanliness of the body).
- ☉ Different competitions like songs, stories and sports at regular intervals (interclass competitive spirit).
- ☉ *Lok Mela* on all national and local festival days (discussions on social problems and social development).

I also noticed that the children felt happy when they were of some help to the teacher. I used to ask children to bring me some fruit or vegetable available at that point of time. Here, receiving a mango or a maize cob was not important. But children felt very happy to give me something. They used to come to the school running all the way. It made

my bond with them very strong. This helped in maintaining attendance up to some extent. But still 100% attendance was difficult, as children had to work for some income. I started small activities in the school so that children did not have to remain outside. Examples include collection of seasonal fruits and berries and making plates from leaves of *Butea monosperma*. These were sold in a nearby market. Some money was spent on giving the poor children study material or clothes. This improved the presence in the school. Since the children maintained accounts of all these transactions, was linked to math teaching.

I was transferred to Moli village in 1980. The situation was similar to what I had faced a decade earlier. I started with community relationship building and a comprehensive survey of the families of the village. The survey helped me in developing an intimacy with the community, and was also a motivational tool. I prepared the children who were in the school for cultural programmes, and on Independence Day held a show for the parents. They were very happy, and one old man suggested that the school hold flag salutation twice a year, and that each house contribute two rupees on each occasion. With the amount, we gave books, notebooks and pencils to the children who participated in competitions that the school held. This increased the presence to some extent. Besides this, the village used to hold a gathering for *Bhajans* twice or thrice a month. Villagers used to remain present in high numbers in such gatherings. I used this forum to raise schooling issues. During one such meeting, I proposed an educational tour to Pavagadh, a religious centre. The difference was that parents could also come. My responsibility for the children was thus

reduced, and resistance from the parents was overcome. We did the tour at a very low cost to the parents. This incident had a magical impact on the community. The parents respected the school so much that they were now ready to execute any work of the school.

In my next school, I put my previous experiences to work. What I added to the survey was a rally and a public declaration that the school would open on a particular date. This was to remind the surveyed parents about school attendance. Every school-going child was motivated to bring one child who was out of the school, drawing on the survey results. This enhanced the enrolment remarkably. I was conscious of keeping the children in the school, and for this I relied on activities that the children liked. Songs, stories, games, short conversations with the children helped remove their fear of a new environment. The prayer assembly remains a major attraction for children. They also enjoy participating in different competitions. This joy keeps them in school. Later we made children participate in science fairs at different levels. They won prizes at all levels, including the state level. We took care to keep the community informed about the achievements of the school. This came back as community support. It has added to the motivation of the children also. To enrich the prayer assembly, we have introduced many activities. The teachers are given a topic as a project. For example, 'vegetation is a natural resource'. The project consists of 14 sub points like the identification of a plant, its uses, kind, parts, seasons etc. Every month we put up one project covering one subject. This deepens the knowledge of the children and improved the quality of education in the school. The effort towards betterment is an endless process.

I started as a teacher in the Bhensal Primary School, Diyodar, Banaskantha, Gujarat, in February 1991. This pocket was very backward. I had earlier worked as a teacher in a private school for five and a half years. In my new school initially I felt that I was standing before a wall. The biggest problem was that the school children spoke a variety of the Rajasthani language. They were unable to understand the standard Gujarati language that I spoke and I was unable to understand the mix of Gujarati and Marwari that they spoke. For a month I went to bed at night confused and worrying about not knowing how I should work with these children. My colleagues could not help me.

Meanwhile I happened to visit my parents. I discussed my problems with my father. He heard me patiently and said only one sentence which shattered my depression. He said, "Son, courage requires no weapons." I had to overcome my fear of talking to the children. He advised me to collect the local words and find out similar Gujarati words, and then try to understand the dialect that the people and the children used. I returned to my school. In the evenings, I called the older children to my house, and made them talk to one another. I listened carefully and asked them the meanings of the words I did not understand. I did this in the classroom as well. Gradually I learned the local dialect. Today I am very comfortable.

Physical Surroundings

Initially we had only four rooms and nine teachers. We had to make some children sit on the *verandah*. The school had a ground but there were only two *Acacia* trees. Two classes used to sit under these trees and one of these was my class. During the recess, children used to throw stones at these trees to get the pods which they ate. Once, a boy of Class III threw a stone which fell on his own head. He was badly injured and I took him to a doctor. I suggested that we cut down these trees. The reaction from the other staff members was severe. They said, "If they throw stones,

let them suffer the consequences. Why do you bother? Don't you know we do not have sufficient classrooms? Where will you sit if these trees are cut down?" I was new and I preferred not to argue with them. Five days later, another child injured his head. The teachers' reaction was, "The village deserves this."

I decided to grow trees in the school to resolve this problem. With the help of the students of my class, I made pits in the school compound, and filled them with clay brought from a lake and manure. When it rained, I brought 150 saplings of *neem* from a government nursery and planted them. My colleagues were not happy. One of them uprooted the saplings. I re-planted. This competition went on for quite some time. He started instigating children to damage the plants.

They did as they were told. I mentioned my problem to a village elder, Shri Raymalbhai. He had a simple solution. "Bring some lemons and green chillies from the town. Smear the lemons with *kumkum* and tie one lemon and one chilly on every plant. No child or adult will touch your plants." He was playing on the superstitions of the villagers; lemon and chilly are symbols used in magic. I accepted the idea. I agree that I used undesirable means, but I had no choice. It was very effective. Children began to take care of the plants. Today these plants are 12-year old mature trees. Out of the 150 saplings, 120 survived. My antagonistic colleague had a change of heart soon after the trees started growing. He himself cut down the *Acacia* trees.

Girls' Enrolment

When I joined in February 1991, there were only 32 girls in all in Classes I to VII. The total population of the village was approximately 1500 then. The average daily presence was only 12 to 15 girls. My HM and colleagues were very discouraging when I asked them what could be done. Then I went home during the school vacation. My mother had four sisters and four of the five women

were working as teachers. One was an Anganwadi worker. I asked my grandfather how he educated all his daughters when he himself had studied up to Class IV only. He replied, "An educated girl will not feel dependent and helpless." I reached my school 12 days before the end of the holidays. With the help of four children of my class, I started to meet people. About 75% of the village lived on scattered farms. We visited every house and collected information about all the girls of the 6 to 14 year age group. We targeted some parents who seemed to be willing to educate their girls. I then took the parents of the girls who studied in the school along with me and talked to the other parents. These 12 days were the most successful days of my career. I could enrol 50 girls of the 6 to 11 year age group in the next academic year. Another 20 girls, who had dropped out, were re-enrolled. I kept building on this initial success for seven years. By 1999, the enrolment had reached almost complete levels: there were 242 girls regularly attending, in contrast to the 12 to 15 out of 32 enrolled in 1991.

In 1999 I became a CRC Coordinator. I have continued my efforts to increase the attendance of girls in the schools of my cluster. I bought a shield with my own money, and declared it as a revolving shield to be given to the school with the best enrolment and attendance of girls in my cluster. This was a very successful initiative. In 2002, I selected one girl from a very poor family from each of the 19 schools of my cluster and provided them notebooks, books and uniforms from my own money. Motivated by this, all the teachers of my cluster also adopted one girl each and provided them textbooks, notebooks and uniforms. My principle of implementing any idea first in my own life helped me a lot here.

Sports as a Medium for Change

Since the girls of the Marwari community in my school (the majority community in the school was Marwari) were of strong physique, I decided to specialize in *Kabaddi* and make the school well known as a result. Some girls of Classes IV to VII were identified and trained every day. There were nine girls who performed quite well. However, I was worried whether the parents would allow the girls to participate in tournaments in distant places. I met every girl's parents personally and took responsibility for their

daughters. After much effort, they agreed to send their girls. I went with my team to a block-level competition in July 1992. For the first time, the girls were going out of their village. We won. The next year, we won the district level tournament. This was a memorable moment. The parents came to see me in the school and thanked me. I then took the girls to the state level competition. We stood fourth in the state. I was thrilled. We stood first in 1995 and were runners-up up to 1998. Every year two to three girls of my team were selected in the state team. The team of 1995 was captained by a girl from my team. The game created such a strong motivation and attraction that the girls became highly regular in attending the school. Along with excelling in the sport, I made them academically focused as well. Almost all the girls now complete at least their primary education.

However, behind this success is a story of coping with a negative social tradition. A girl engaged to be married wears a heavy silver band, locally called *kadla*, around her ankles. The *kadla* cannot be removed. Most of my good players wore *kadlas*, but the inter-school tournament rules did not allow them to participate. Taking the girls into my confidence, I removed their *kadlas* with the help of a smith, and re-fixed them when the girls returned. The parents of these girls were not aware of this. The girls also never informed their parents as they were interested in participating in competitions. This went on for four to five years. Even when we won the state competition, the parents did not realise this was happening. Such was the secrecy and the desire to remain in school among the girls. Finally, the parents came to know about my practice. They did not say anything. On the contrary, a couple of parents came to see me and told me that I could continue with my practice. They told me that they would not allow me to remove the *kadla* in the village due to their social norms. I was impressed with their behaviour. I must admit that the specialisation in one sport has helped me reach out to the children and to win the trust of the village community. When I joined as CRCC in 1999, the school was not within my cluster, but the parents came to me and requested me to go along with the team. A girl from our team was the player of the tournament, though the team stood second. The tradition has continued in the village, and the school still specialises in *kabaddi*, with the girls going to national level competitions. Interestingly, the girls who have passed out now train the

new girls in *kabaddi*. I worked hard for three years only, but that has left behind a very good tradition among children. The girls now train their peers, and this is my biggest achievement.

Other Efforts for Women's Empowerment

When we were preparing for the Republic Day celebrations in 1997, it struck me that the unfurling and salutation of the flag should be done by the woman *Sarpanch*, Smt. Shardaben Taraji Vankar. Women *Sarpanches* of this region are usually dominated by their husbands, who operate on their behalf. My colleagues were worried that if a woman *Sarpanch* and that too from a *dalit* community were to be invited, there would be trouble. When Shardaben came to meet me as her son was in my class, I put the idea to her. She said, "How can a woman like me unfurl the flag? Are you in your right senses?" I explained that a *Sarpanch* performs this task and has every right to do so. I met her husband and explained what I wanted to do. He agreed, and Shardaben agreed to officiate. I informed my colleagues. When the news spread in the village, some leaders were not pleased. Even though I had given the school an identity through *kabaddi*, and had done a lot for the school, they abused me. I did not flinch. On January 25 Shardaben told me that she would not come for the flag ceremony. She said that she wanted to live in the village. This broke my courage. Again I met her husband and some other villagers who were not averse to the idea. Seeing this, Shardaben resolved to do her duty. I came back to my school and started my rehearsals.

The day began on a tense note. The members of Shardaben's community were very happy, but they did not express their happiness. The villagers gathered in the temple. Everyone was talking about the ceremony. Shardaben came to the school on time. I told my colleagues that they must attend the programme, since as government servants if they did not attend the programme, it should be considered as contempt of the national flag. They understood quite well that I was right. At 8.15, the children were arranged in rows and I invited Shardaben to unfurl the flag. Gradually one after another the villagers also came into the school. They were also interested in the cultural programmes; they had realised that I would not give in. Those who had opposed the idea but came to the

school admitted to me later that they were wrong. The cultural programme then started. The Talati of the village called the TDO over the phone and informed him about what had happened. The TDO, Mr. Nayak, to his credit, came to the village immediately in a jeep. He reached midway through the programme. In the presence of all the villagers, he appreciated what had happened and presented me with a garland. I felt rewarded. More importantly, the incident had a great impact on the villagers.

Abolishing Absenteeism: By Hook or by Crook

When the crops were harvested, the parents of the village tend to keep their children at home to look after the household affairs. Because of this, absenteeism increased in the school. I studied 42 students who faced this problem. Persuading parents did not work. I discussed the problem with the then *Mamalatdar*, Shri A. B. Shah. We decided that a letter, written by me on his behalf, to the parents of these children would help. The *Mamalatdar* gave me permission to go ahead with the idea. Since we were doing this for some good purpose, I did not see anything wrong in using an apparently deceitful way. The letter threatened the child with removal of the name from the school's records if attendance continued to be irregular, and in extreme cases, the ration card of the family would be cancelled. The letter was sent to the parents through other children. The trick had a great impact. Within a few days, 36 children out of 42 became highly regular. When some of the parents went to meet the *Mamalatdar*, he also scolded them and warned them that if they did not send their children regularly, their names would be sent to the Collector's office and they would not be given any government benefits. Thus, with the help of *Mamalatdar*, I could overcome this problem very successfully. Another benefit of this trick was that irregular children of other classes also became regular. If parents needed to take leave for some reason, they used to come to the school personally to ask for leave for their child. The biggest benefit of this 'lie' or 'trick' is that these children improved a lot in their academic performance. Two boys of these 42 students became engineers, and two girls became members of the *kabaddi* team that played at the national level. Absenteeism today is negligible. Without the support of the *Mamalatdar*, this would not have been possible.

I started teaching in 1978. In my first school (Tadwadi village), all the children came from families of agricultural labourers. The school had one hut-like room. There was no bell, nor were there office records or attendance registers in the school. I was shocked to find the school in such a pathetic and disorganized state. This was my first exposure to school teaching, and I was afraid. When I was unable to mark even the attendance, I lost the courage to control the children. Soon I realised that fear was not going to help me. I prepared myself mentally and began my work. I visited each household personally, and prepared a list of 55 children in the school register, with a lot of difficulty. I needed to get a picture of who was in school and who was out of it. I started 'school' by gathering the children. But I needed to build something fast. When I could not think of anything else, I organised a cultural programme that surprisingly fetched me Rs.3000. But this was a very small amount. I again gathered courage and met the District Education Officer. I informed him of my problem with a lot of stammering. I must appreciate that officer since he took it very positively and approved one room immediately. He went further and got the Asharam Ashram in Surat to sponsor construction of three more rooms. Finally, we had a school with four rooms and Classes I to IV. Now with one more teacher, we worked hard for seven years in that school. The initial steps of this effort are actually a series of incidents and strange experiences which developed my inner strength. This gaining of strength, as part of a teacher's development, is absolutely necessary if one wants to overcome the problems of primary education in difficult areas.

Here are two incidents as illustrations. It was during my initial days as a teacher: once when I was teaching my class, a drunkard entered it without permission. He came and said, "Teacher, teach me also." I was very scared and retreated into a corner. The more I was afraid, the more he became fearless. Children were also confused and did not know what to do. The drunk man moved towards me.

Now the children acted. One of the students pushed him from behind and he fell down. All the students thrashed him. This was a lesson for me, and after that I could handle drunk men very easily. Another problem was an abundance of poisonous snakes. Once I found some of the children playing with a snake's eggs. This was an incident which made me act. I decided that poisonous snakes in the school compound and premises had to be killed. I contacted the villagers and we underwent training on identification of snakes and how to kill them. We also collected information on the life cycle of snakes. With this information, we were careful, and at least, within the school premises, we killed poisonous snakes whenever we found them. This was important, since the safety of the children was important for me, especially when medical facilities were just not available.

Over a seven-year period, the school was completely revived. Our goal was not limited to just enrolling children. We aimed at seeing to it that they moved into a career track. Thus, the school now has a full strength of 850 children and 15 rooms; we have graduates who are today in the police and teaching professions. The school works in two shifts, and has a nice garden. Whenever I revisit the school, I feel a sense of satisfaction.

After a brief period teaching Class VII (when I had only taught Classes I-III earlier) I was transferred to the Ichchhapor Primary School, where I served for 14 years. The HM of this school was very strict. I liked his approach. I taught in Class II for a couple of months, but was then given Class VII, since this class had been left without a teacher. I taught thus for 12 years. The school's students do well in the secondary school which caters to a total of four primary schools.

Though I liked the strictness of the HM, I did not like his rigidity regarding an exclusive focus on classroom teaching. The school neither held nor participated in cultural programmes or sports festivals outside the village. I decided to open the doors to cultural activities as I believe that

such activities are very important to explore the hidden potential and skills of children. We decided to keep the HM out, initially. I started training my students for different events behind closed doors. It was a very painful experience for me to be secretive when I was doing something creative and worth doing. But I felt there was no sense in arguing when the opponent had authority. I decided to achieve results first and then argue. Even my colleagues were not ready to help me openly.

I tried to seek help from outside the school. The CRC coordinator saw my work and agreed with my approach. He helped me. We somehow managed a tractor. Now the final step was to take the students out through the back wall of the school directly into the trailer. But the CRC Coordinator panicked at the last moment and our plan was exposed to the HM. He tried to prevent us from going. This was a moment when my courage was tested. I dared to disobey him for the sake of the children. We went and to the surprise of all, won in nine events out of 13. This was what I had wanted to achieve. The HM came to my home and congratulated me. But he did not allow us to compete at higher levels when we could have managed even that. When we could go up to the district level, I decided to fight him. Officials of the department intervened, and realised that what I proposed was within the school's ambit. The HM was transferred. Other teachers refused to become HM and I was given the responsibility.

The transferred HM was administratively very effective; his records and accounts were well maintained. I did not have to face any problem on the technical side. The only limitation was that the school had only about Rs.1000. However, a bigger challenge was to improve the academic output of the school. I started to work in this direction with the prayer assembly. I introduced songs, jingles, stories, thoughts for the day, into the prayer assembly and made other teachers also aware of their potential and motivated them to take the initiative. This worked and the school did have group academic activities as part of its calendar.

When I was transferred to another remote school (village Bhatpor), the situation of the school moved me. The school building was in a pathetic condition. The faces of the children did not show joy. The community was by and large illiterate and alcoholism was rampant. Out of five rooms, four were closed. There was a snake hill on the school premises. What was most unbearable for me was

to find out that children were also addicted to liquor. The school surroundings were an open air toilet. This compelled us to keep the windows closed. Drunken children wandering here and there used to throw stones at the closed windows and doors of the school. Because of this, the doors were all broken. The school walls were covered with obscene graffiti. There were hardly 35 to 40 children. The single teacher working here used to lock herself with these children into a single room. She was very caste-bound and would not even drink water given by others. She used to remain on leave for long periods. In short, there was no one to look after the school and students, or to give a hand to the community to emerge from its living hell.

One day, as soon as I had joined, I was talking to the class, and found that a girl of Class III was unable to stand. Initially I thought that she was not well and I tried to talk to her. But instead of answering my questions, she just kept smiling at me with saliva oozing from her mouth. When I asked the other girls what was wrong with her, they told me, "Teacher, she is drunk." A shiver passed through my body. I was thinking, how can this be possible? I could not help asking her why she drank. Other voices came in response, "Teacher, I am also drunk. Last night we did not have anything to eat. So my mother and father gave me local liquor to drink." Out of 55, 27 children were drunk. I thought to myself, "What is this school and where is the education we talk about?" Life imposed this on me, and I accepted my share. I took this neither as a test of my life nor of any abilities. I just began with the simple realisation that I should try to move them from darkness to light.

My previous experience at Tadwadi, where the children had been from the same community but had been in better shape, came to my help. I gave my love and compassion to these children. I helped them prepare a schedule for daily activities of bodily cleanliness. Also I taught them to take up some cleanliness work at home, like cleaning the home, the verandah, to prepare Rangoli at the door step with flour (as they had never seen soil normally used to prepare Rangoli). These children did not know what sweets like *Penda* and *Barfi* tasted like, and so I prepared sweet *prasad* for them. We scheduled street cleaning campaign every ten months.

The school surroundings needed much work. The liquor outlet nearby, youngsters gambling, and their generally

filthy state, did not help at all. One day I came out of the school and went to meet a parent (a liquor producer) whose daughter studied in my school. I greeted him. He was shocked to see me there as he was drunk. Despite this, he offered me a seat. But without giving him any time to recover I asked him, "How can you live in such a dirty place? School is the temple of goddess Saraswati. Do you think it is good to have a temple in the middle of filth? Why do you allow people to spoil the place?" This outburst had the desired effect. He gathered people from the village. Half of them were drunk. But they went to work immediately and made a five-foot hedge of *babool*. They then controlled the children who were throwing stones. He sometimes met me while passing by and asked me if I needed some help. Now was the time to ask for a little more. I requested him, "Can't you move the liquor shop a little further away from the school towards the river bank?" He was so affected that he closed the shop.

Developing the school

We planted trees behind the school building. I put subject teaching aside and collected about 40 songs which could be sung, and made the children play local games till they got tired. I got some sports equipment from a public sector company, GAIL. We now had three teachers, and we played games like badminton, volley ball, *ambli pipli*, *saat thikdi*, with the children. The children were also made to sit and clean lice from each other's heads.

The public sector company also built good toilets for the people, but the outlets were choked with stones, pieces of glass and soil. I wrapped a plastic bag around my hand and cleaned one toilet outlet. When the children and teachers saw this, a teacher (who had just joined the school) and the children cleaned the others. The school had water storage facilities but there was no water, since there was no meter. We acquired one. One teacher donated five fans. Thus we made arrangements for water and fans. One day we thought that since we were spending so much time in school, there should be better physical conditions. We contacted a cooperative society in Hazira. Our entire belt of schools got donations of Rs.11,111 each. We thanked them and under the guidance of the Education Officer the school building was painted with distemper. Now the school building looked much more pleasant.

Even after rigorous efforts of six months to keep the children away from liquor, there were some children who came drunk. When I again tried to find out the reason, I found that their parents sent them to buy liquor. And of course, when food was in short supply, liquor was handy. I again met the parent who had helped me previously. He intervened and took upon himself the task of educating the parents not to send children to buy liquor, or give liquor to children. But this posed a new challenge before me. Due to irregular supply of mid-day meals, a crucial input into schooling in such areas, the children were getting irregular meals. Again I asked GAIL for help. With their help I could provide sweet milk to the children. Often I myself made *doodhpak* (rice and sweetened milk). Meanwhile, the officer in that company was transferred. So now the children had neither milk nor liquor. However, I am proud to say that once the liquor habit had been broken, the children quit drinking completely. They are indeed enjoying their childhood now. I am very satisfied with that.

The final result has been that the villagers themselves look after the school building when I go on vacation. The youth who used to deface the school have now dumped 10 tractor loads of soil to level the school ground. There is no disturbance in teaching during the day. We have made a seating arrangement under the banyan tree outside the school compound. Now people show more readiness to help. If I try to give money for something, they say, "No teacher, we cannot take your money." With the children, their self esteem has grown. They understand that liquor and tobacco addictions are bad. Five students have progressed to secondary school level. Since classroom activities continued, I made children participate in school science fairs, at the block level, and once at the district level. The school won for three consecutive years in spite of facing competition from many schools of repute. Two items at *Taluka* level, one at district level were selected. We secured second and third place at state level.

It has taken four years to achieve all this, but I feel that three more years of sustained effort will overcome the obstacles to academic achievement and make schooling sustainable. Even now, students of Class V are able to read and write, but cannot speak well. Their unexplored mental abilities will take time to open and grow. According to me, this much change in four years is good enough. The journey is still on and the destination some distance away.

I joined as a teacher in 1986, and very soon after my initial posting, was transferred to a second village where I continue to work.

Earning the Respect of the Community

My enthusiasm as a teacher of young children was dampened a little when I realised that the Padar community whose children I taught always criticised teachers as being useless people who 'take a salary for doing nothing'. In spite of the fact that we teachers tried to perform well, we were criticized by the village community. The idea of doing something new came from the desire to eliminate such criticism. We first visited some good high schools, which included the High School where I had studied. The HM of the school was a national award winning teacher who gave us useful guidance. We learned that it is necessary to keep community informed of the activities going on in the school in order to increase their participation in school affairs. For this, we laid special emphasis on women's gatherings and parents' gatherings. Gradually we began to receive support from the community. Along with this, appreciation from some officers and educationists boosted our enthusiasm. Using government grants and community support, we began to make TLMs in the school using our own understanding and creativity. These were used to the extent possible in the classroom, and were also exhibited in public programmes. This was combined with demonstration of dances, parades and singing of patriotic songs. Such performances by our school enchanted our audiences and helped us gain the community's attention.

Gradually the school environment became very congenial for education. The result is that now school teachers have earned the respect of the villagers. When an earthquake struck in 2001, the school took the initiative to support the victims in a small way, and the community joined by preparing food for distribution. One effect has been that the problem of irregular attendance has been

solved. We used to just go to the parents when a child was absent; this embarrassed the parents.

Developing Writing Ability in Children

I used to observe the spelling mistakes, curves of hand writing and other aspects in the writing of my students. Whenever I used to check their essay writing notebooks, I noticed the spelling mistakes and shortcomings in handwriting and felt that it was an area where weaknesses existed. In 1995 I found a new way of improving the writing ability of students.

I started this activity in Class IV. In order to inspire children to write more and more and to develop sense of brotherhood among them, I obtained addresses of some children from the neighbouring village. During my class, I talked to my students about writing to them and making friends. The novelty of the idea clicked so well that within ten days, a good deal of exchange of letters was done. I told the children not to write more than once a month, since letter writing should not become a routine affair. We arranged for a letter box for the received letters. Every letter was given an incoming code and all the received letters were pulled out after one month. Every student was given one letter. Then every child was asked which letter was the best. Which letter had how many and what kind of mistakes? What should be done to rectify those mistakes? This resulted in the children's taking the responsibility to learn correct ways of writing and to improve their handwriting. (Since they found it hard to read other people's writing, others would have similar problems. Some also got feedback that their handwriting was not readable.)

Students' Store for Mathematics Learning

It is normally seen that students are unable to make practical use of mathematics. They use their brains in solving a mathematical problem, but it takes time for them to implement

this knowledge in a real life situation. Hence, if they are given education through real-life situations on aspects like commission, purchase, sale, interest, and remuneration, it proves to be long lasting. Along with such education, children can also develop a sense of responsibility. For this we started a students' store, "*Vidyarthi Grahak Vastu Bhandar*" in the school. The children looked after purchases and sales and all accounts. In order to make them alert, a coordinator was appointed. Every month a review of this activity was undertaken. The outcome was that the students developed the habit of keeping accounts. The financial management was discussed by the children and all of them participated very actively in the process. Their use of the arithmetic they learned in the classroom was monitored. The success of this activity made us think of starting a savings scheme also. We formed a cooperative savings "bank".

Dramatisation of Lessons for Oral Skills

It is a normal belief that children are imitative. They immediately write down in their notebooks whatever a

teacher writes on the board. But I found in my class that children were unable to give a simple narrative of the events in their lives. For this, I thought of dramatizing the Class I lesson entitled "*Shak no raja kon?*" (Who is the king of vegetables?)

To teach this unit in my class, I made the children take on the characters of the lesson, for instance, the potato, the tomato, the brinjal, the cabbage, the onion, and so on. I asked them to prepare on the special qualities, features and popularity of each vegetable. Then this unit was presented during the prayer assembly. The competitive feeling of the participants made the programme very interesting. One after another, all of them presented their items. The experiment taught them the unit through entertainment. The results of this experiment were amazing. Children who used to hesitate to answer a question could now express themselves very comfortably. Inspired by this success, we prepared such dramatized performances on a variety of topics like birds, animals and presented them in prayer assemblies. The results of these performances were really impressive.

I have been working as a teacher for only five years. My first posting was a challenge. People were not ready to give me a room because their previous experiences with teachers had not been good. I finally got a room that was infested with rats. I had only five sets of clothes, and within a few days, the rats made a meal of them. I decided to resign. When I went to the school the next day, I began to think about the problems from the village's point of view. Teachers were posted here as a punishment, and they were just waiting to be transferred out. Therefore, they never paid much attention to the students. I looked at the children and decided that I could not run away from this depressing situation. The two main communities—one a middle-caste group and the other a Rajput caste—in the village were at loggerheads. Their quarrels used to be taken up at the district level also. Again the school itself was not something which would please someone. The students were very irregular. There was nothing like a uniform or discipline in the school. There were five rooms in a very bad condition.

I decided to start by regularising the children. It took us a few months to persuade the people, and finally we achieved some success in ensuring attendance in school. As a second step, my colleagues and I began to develop some discipline among the students—simple things like placing their footwear in a line, walking in rows to the prayer hall, greeting the teacher while entering class, and so on. We took a long time to develop some basic discipline among these children. However, patience and persistence produced good results. This was a good beginning. We felt that teaching children inside the classroom on the blackboard would not help to bring about change. Therefore, we called each child personally and assessed his or her level in different subjects and noted it. We maintained a register. We used to note the child's performance on a daily basis so that the next day we could help the child move one step ahead. The pace of learning was very slow due to such personalized attention, but

whatever we did was very concrete. We were satisfied with the slow but steady progress. We took a long time to prepare the students, but the results were very good. We had to see that the students did not get discouraged by this struggle. Therefore, whenever we felt some fatigue, we switched over to stories, indoor games or songs. We used many TLMs to make the learning process easier for the students. Apart from the regular TLMS like cards, things, toys etc, I used audiocassettes as a teaching tool. I recorded complete lessons, except the math lessons. The recordings included questions and answers. At night, the children had to sit in groups, obtain a player and listen to the cassettes. This was a kind of revision. They could listen over and over again, and this was appreciated. The parents noticed all this. This was our reward.

We also started different programmes in school. Previously nobody used to come to such programmes organised by the school. However, the scenario changed in three years. We needed to catch the attention of the people on the occasion of *Praveshotsav* (enrolment day). I used to organise a *Satyanarayan Katha* on that day. As a result, all the members of the village came to the school. I used to prepare about 40 kg. *prasad* for this *katha*. Secondly, I started a "*Gram Samachar Board*" in the school to highlight news and useful information. For example, on so and so date, kerosene will be given. There is a programme of so and so religious speaker in so and so village. This attracted the villagers. This board was kept outside the school so that the visitors did not disturb the students. Thirdly, I planted a *Beej Vad* (Banyan tree) in the school. The women of the village began to come to the school premises to worship the tree, as it is a religious belief. These changes started showing results within a year. During this one year, we also focused on the children's health. We made them stay away from low quality and unhygienic sweets and ice cream brought to the village by itinerant hawkers. Then I taught them to make ice cream at home. Since these village people have their own animals, the quality of milk

is good. They used to make ice cream and enjoy it. Such concerns helped us win over the children.

Unfortunately, the 2001 earthquake shattered us. The entire village was in the school at that time. All the rooms of the school were badly damaged. It was dangerous to make the children sit in the rooms. Left with no choice, we made them sit under the trees. The ground was very small and it was difficult to accommodate all the students. Secondly, the heat was oppressive since there were very few trees. We spoke to the village leaders and they showed their readiness to support us. The government gave repair grants. But the villagers proposed that even repairs would not do, and wanted new rooms. We formed an education committee. We went house to house, collecting funds. The results were beyond my imagination. The village that was not ready to give 10 rupees to the school contributed Rs.1,75,000. My source of inspiration was Shri Ajitsinh Solanki of Valbhipur Manas Primary School. I used to visit this school quite often and used to talk to Ajitbhai. He used to tell me how he made his school. It was through him that I was inspired to make the school building through community participation.

Though the villagers had begun to cooperate, there were some real hurdles. The two communities of the village never saw eye to eye. The damaged school building was in the old village location. After the quake, many people of the middle caste moved to new plots. The original school location was quite distant for their children. When the *Gram Panchayat* was to be shifted to the new settlement, the matter was taken to court. Now if I wanted to move the school, the same experience might be repeated. The community which continued to live in the old village was powerful. I called their leaders to the school and explained the entire situation. Fortunately, they trusted me, and agreed to let the school move. By now, perhaps the people had realised that schooling should not be affected by factional politics.

For the additional resources, we went to the villagers who were working in the diamond cutting industry in a far-off city. We gathered Rs.1,00,000 from them. We were able to gather another Rs.50,000 from other donors. When we ran short of money, we had to borrow a small amount.

During the vacation, some villagers had returned from their employment for a break. I informed them about the debt. In no time, we gathered enough to repay the debt. For the fans, I suggested that the village stop the '*Batuk Bhojan*' (a tradition where families feed children with good meals for special occasions) for some time and donate that money for school facilities. This was accepted and infrastructure like glass blackboards and drinking water, was created. The MLA of the area sponsored the compound wall from his grant. The gate was left. One day a gentleman brought Rs.25,000. His married daughter had committed suicide and her parents-in-law had given him the money. He did not want it for himself, but wanted to do something in his daughter's memory. He got the gate done. The rooms of the school have been made quake proof. The building is built at a height of four feet from the ground so that good air circulation and natural light are ensured. There are *Gulmohar* trees now. Instead of using tiles or plaster inside the rooms, we used high quality Kota stone.

A savings bank has also been started in the school with a view to developing the habit of saving among children. At the end of the year, a tour is organised with this money. The place to be visited is kept a secret until the parents are sent the consent letter. I wanted a computer. I made the children write a letter to selected donors, asking whether it was their fault that they were in a rural area, trying to gather resources from all places. We actually received a computer, and our school was the first school in the block to use computers.

The outcome of my efforts was that the children became enthusiastic about attending school. The community members and parents also began to take an interest in the school activities. Even at the time of weddings, some village members brought the *Janaiya* (the relatives and friends of bridegroom) to see the school. This was our recognition. Such people came to the school and gave some contribution or other. We were very happy. The most remarkable achievement is that, after these efforts, the children of this village have started enrolling for secondary education. At present about 80 % of the primary graduates go into secondary education.

I became a primary school teacher in January 1976 and I joined the Pipalwada Primary School. Initially my colleagues and I took up the challenge of mainstreaming the Kshatriya community of the village, since it was deeply mired in superstitions, social evils, and inhuman customs. We decided to start with the most grave problem of the school—50 percent attendance in school.

Drive for Improving Presence

The population of the village was about 5500. First we compiled a list of all the pockets and streets of the village and prepared lists of children according to the streets. Further details like the names of parents, occupation, time of availability etc. were also registered. Since the school was large, there were 14 teachers. We divided ourselves into four teams and took up responsibility for different streets.

Every team used to go to its street, spread a rug on the ground and hold a gathering. We always carried a list of absentee students. To entertain people, we performed skits on superstition and girls' education, and also sang *Bhajans*. The teachers used to prepare students to give such performances and students used to perform at the gatherings. During the day, the parents were contacted, to motivate them to attend the gatherings in the evening. Every Thursday, the four teams performed actively in their streets. Such continued activity not only increased attendance in school, but also the enrolment for the following year. This programme was called "*Khatla Parishad*".

Teaching Learning Material

I was later transferred to another school. I found here from the results of the examination that the children were very weak in mathematics and science. During classroom teaching I also realised that they found some topics

difficult. I started with a Numeral Display Tool, made on my own. This tool is such that children themselves can read, write and develop an understanding of numerals. The children enjoyed learning numbers with this tool and its reflection was seen in their performance. This tool is still in use, for over ten years now.

For science improvement, I planned a project, "Nature and Society". One lesson in the science textbook of Class VII covered real life places and occupations. The best way to teach such lessons was to expose the students to these real life situations. Therefore, I used to take my students to visit hospitals, patients in their homes, agricultural institutions, nurseries, shops to show vessels of different metals. I also took them to a secondary school to demonstrate some science experiments. Apart from this, I also took up topics like erosion of land, different kinds of erosion, erosion of rocks due to rain, rivers, farms, lakes, and different kinds of stone, in order to generate an interest in science.

Geometry Teaching

I found that children of Classes V to VII had difficulties with geometry, and showed no interest in learning. I thought of preparing some tool, and the result was a Geometrical Aquarium. My hobby of drawing came in handy here. First I prepared a large sized protractor. This protractor was fixed onto the shape of a fish made from cardboard. It was photocopied to prepare multiple copies. I made two fish and fixed them in such a manner that they could slide on two strings. Thus I prepared a tool to show two angles and a line crossing them, thus showing *chhedika* (intersecting lines). Later on I prepared an improved version of this aquarium with multiple fish, showing all kinds of angles and lines.

My other TLMs include a globe; a Numeral display tool; a Numeral ship with snakes and ladders; Explanation of "area" using graph paper and Tools for demonstrating experiments with light.

As a BRC Coordinator, I have helped all the CRC Coordinators of my region to prepare such TLMs and have trained them in the use of TLMs. These TLMs are now available with all the CRC Coordinators and they are being used in many schools of our region. Now I am focusing on improving math and science at my entire *Taluka* level. The subject teachers teaching specific subjects have also shown much interest in preparing and using these TLMs.

Because of my interest in making a variety of TLMs, the students also learned to think about new tools and actually made them. With empty boxes of biscuits and convex lenses they have made magnifiers for viewing rolls of pictures prepared from old magazines and old books. The students have also shown a lot of interest in collecting math puzzles, and have also learned to prepare models dealing with sound and light.

I have observed that the children who benefited during the process of making and teaching through these tools, later on joined the science stream. They remember their learning experiences even today. Besides exposure to such tools, they were encouraged to participate in science fairs at district and state level.

Details of TLMs and Experiments

Geometrical aquarium

After making this tool, I tried the tool on an experimental basis to find out whether it was effective in teaching the concepts. The students were divided into two groups, the experimental group and the control group with 35 students in each. A knowledge pre-test was also taken. This tool basically was meant to teach quadrilateral related aspects. The action research kind of planning was divided into 22 periods. The following is a list of the raw material required to prepare this tool and the cost per item.

A sheet of plywood
A piece of plastic paper
A protractor
Xerox paper, about 20 pieces
Colour, gum and rubber bands
Nails, screws, strings and a measure tape
Small round pieces of rollup board

The expenditure on the tool is as follows.

Plywood piece	Rs. 150
Stationery cost	Rs. 100
Xerox cost	Rs. 80
Colours	Rs. 50
Evaluation cost	Rs. 70
Thick paper	Rs. 50
Total	Rs. 500

Procedure to prepare the tool

1. Prepare a scene of fish swimming in water on a plywood sheet.
2. Prepare sample fish about 20 cm in length, from a plastic sheet.
3. Stick the protractor dial on the shape of the fish.
4. Stick a piece of rollup board in the middle of the dial.
5. Fix the fish prepared thus on the board at the proper distance.

When a number of such fish are fixed on the board, they make multiple parallel rows of fish. Secondly, as they are fixed on the board with a screw in the centre, they can revolve. As a result, while teaching, a teacher can move the fish on the horizontal lines and rotate the fish from the centre. Thus, they make various triangles and quadrilaterals. When the rubber rings are used to connect different fish from their centres, various angles can be created. The protractor fixed on the fish indicates the exact angle. Thus, endless angles can be made and demonstrated. Children can themselves perform the activity and see what angles it makes.

In addition to this, I made some very simple tools for the same purpose of teaching geometry and different shapes. For example, I used the spokes of a bicycle wheel and rubber valve tubes as connectors between two iron spokes, to make squares, rectangles and many other shapes. Also, I made a model of a human body using thin sticks collected from old kites. The model is made in such a manner that all the body organs are represented as different geometrical shapes and angles.

The Geometrical Aquarium was tried in the classroom situation for 22 periods. When the same groups were given post-experiment tests, the results were highly encouraging.

Numeral Display Tool

I prepared this tool to improve the quality of mathematics teaching for Class IV children. I made experimental and

control groups to find out whether the tool I had was useful. I planned an intervention over 20 periods; 30 students of the class were divided into five groups of six students each.

Material used to prepare the tool:

- Wooden pieces of match-box size, about 50 to 60 pieces
- Iron rods
- 24 x 12 inch hardboard box
- Number box for numerals
- Cards prepared from card paper or hardboard
- Colour
- Rubber rings
- Two wooden pieces

Thus, the cards of numbers from unit to thousand are prepared.

To use this display tool, a figure is written on the blackboard, say 7538. Starting with the unit, there is 8. Eight pieces with 1 written on them are brought forward from the rear. Now cards with 8 written in figure and word are placed in the place made below the display. The second digit is 3. Three pieces of 10 are placed in the row of ten. Again cards with 30 written as figure and word are placed below. In the third place, the hundreds, the figure is 5. So five pieces with hundred written are brought forward and cards are placed. The same procedure is followed to prepare figures with thousand, ten thousand and so on. This repeated exercise helps children understand the concept and remember it. The final testing proved that the tool is indeed helpful in teaching the targeted concepts. The following are the details of expenditure incurred on this tool.

Numeral box and model	Rs.	350
Stationery	Rs.	200
Computerization expenses	Rs.	300
Miscellaneous expenses	Rs.	150
Total expenditure	Rs.	1000

Teaching Mathematics using Graph Paper

The syllabus of Class VII consists of lessons on the concept of areas of different shapes. After teaching these

lessons I undertook informal testing. From this I found that the children found it difficult to understand the concepts of square, rectangle, and cylinder. To explain the concepts, I used graph paper. First I explained what 1 square centimetre was. Then with the help of the same graph paper, more than one square was shown to explain multiple squares. Every group prepared such samples using graph paper. Using a measuring tape, they were given the idea of 1 metre = 100 centimetres. Then the children were taken to the grounds and the length and width of the ground were measured. Then they were given ideas of square metre, hectare and square kilometre. Using chart paper, the area of a rectangle, a circle, a cylinder were examined. Tests were taken after each unit. Finally the post experiment test was taken, which established that the use of chart paper increased the achievement level.

Science Improvement Project: Nature and Society

I personally believe that for effective science teaching, lectures given in the classroom are not enough. Society and nature are living laboratories. The idea came to my mind when I was teaching students of Class VII a unit called "Soil". First we visited a soil testing laboratory in a nearby town. Next, to explain how soil is formed, I used a globe and charts—the portion of land, ice and rocks on the earth, the composition of soil and the layers of soil. Also, I had special sessions on the formation of rocks. This was followed by a visit to a temple on a river bank to show the children as many live examples as possible of what they had understood from the charts. During this visit, they had to keep notes. These notes were brought back to the classroom and discussed. Then, with a magnifying glass, the students had to go through the components of soil. Charts I had prepared gave them detailed information about the components. Some simple experiments were also made, to understand related concepts—a piece of clay mixed with water and observed the next day; comparing the weights of dry soil and wet soil, and so on. The students finally had to classify soils; they had to collect samples and prepare a table indicating details of the various types.

I was born in a remote village, and for my higher secondary education had to walk five kms each way to school and back. During this time I developed an interest in gardening and plants. In my first school where I started work in 1977, I cultivated a good garden which became a centre of attraction for the village community and children. After about four years, I was transferred to a tribal area school where I worked for another four years. Here also I focused on teaching through plants and gardens. Then I joined Ambheta school in 1985, which was not very far from my home village. The school was in a very bad condition. Its only proper use seemed to be as a rest house for bridegrooms and their relatives. Otherwise, it served as a rest house for all the wandering animals of the village and for people who did not have any place to stay.

I was new to the village, but working alone, made a thorn fence around the school; then I started levelling the school compound. The villagers saw me working alone for some time, then a few village leaders asked me what I was doing. I told them that I wanted to make the school alive. They realised that I was serious and agreed to support me. I prepared a plan for the school gardens and brought saplings from the government nursery. I planned to prepare an entrance and a "green corner" to be called *Gandhi Kutir*. I painted the school with pictures taken from the textbooks as models. As the school and school premises became more and more attractive, children started coming. The villagers got involved. We created a "Kitchen Garden", a "*Prarthna Chowk*" and a beautiful "Nature Education Garden", all by cultivating the plants on our own. The community built an approach road for the school. With the passage of time, the school continued to progress and received the Best School Award at the block level. This motivated the children. The gardens were classrooms, since many of the plants and activities could be related to what was taught through the textbooks. The children's presence and attendance increased dramatically. Making irregular children regular has been the major role of the

Nature Education garden. All girls of school going age were enrolled, and the school environment has been primarily responsible for keeping them in school. The breakthrough took a few years, but over a 14-year period, this school grew into one which is very good and one which has addressed the problems of enrolment and retention. I may add that the quality of the education has also been satisfactory.

In 1999 I was transferred to another school, the Navatariya Primary School, in another block. Here though the school building was somewhat okay, the school compound was often used as an open air toilet by the villagers. Fortunately, there was a canal passing near the village. I started to create another garden in this school. With the help of the school children and some villagers I gathered pillars for fencing and built a fence. The school compound was thus protected. But some people who used the school as a toilet used to damage the fence everyday. I brought the matter before the village, and the *Sarpanch* assured me full support. This resolved the problem to some extent.

I thought of a plan of *Bagayat Sinchai Yojana* (irrigation system in the school garden). The community got interested. With community help, we made a tank, laid a pipeline after levelling work and started irrigation. The requirement of water was satisfied. A Garden Complex with *Gandhi Kutir* and a *Vanaushadhi Udyan* (herbal garden) was created. Along with this activity, I also got a flag stand, dining hall and other facilities created. All the classrooms were decorated with pictures and new study material was prepared.

I then implemented the idea of a science room. I have taught in the upper primary classes, and my experience with Class VII has taught me that there must be one such room in every primary school. A 'Science Box' which is the usual practice/tradition in primary schools is not enough. There should be something that exposes children to different concepts of science, gives them the freedom to

tinker around and the opportunity to learn about science in a holistic manner. I surveyed the block, and found that on an average there were about 400 children in each school, but not one school had an exclusive facility for science teaching. This study inspired me to create something for science learning.

Initially I decided to prepare a science corner in the school, but when it came to the facilities, I had to pause a bit. The first requirement was some basic infrastructure. When I started to look around for options, I saw a 20 foot eucalyptus tree trunk lying in the school compound. I thought that it could be used to prepare the table and other furniture for science experiments. During the recess one day, I was taking measurements for a table and other requirements in the room, when a villager Shri Maheshbhai B. Patel came to see me. He asked me what I was doing with a chalk stick. I told him about my dream that I want to make a science room here. He proposed that we should seek some support. He took me to the Chairman of the Nagarik Bank at the district headquarters. We proposed the plan for a science room to him. He was so impressed with the idea that he immediately approved the amount that we asked for, Rs.26,480.

With this help, we started by making the iron frame for an experiment table, and prepared waterproof surfaces ourselves. The teachers did all the carpentry and painting. Next we made fibreglass models of human organs, and bought five sets of experiment instruments to facilitate science experiments in groups. We also bought some scientific photographs. Using our own resources and available welding and other facilities we prepared models of planets, the solar system, eclipses, and fixed them to the ceiling. The drawing teacher Shri Rajeshbhai Gamit took great pains to paint the room and give it the finished look of a science room.

With the passage of time we made the following changes:

- ① A new arrangement was made for the children of Classes V to VII to sit separately in groups and conduct experiments.
- ② The tables for experiments were arranged in such a manner that the children could sit or stand and conduct or observe the experiments.
- ③ Separate baskets were made to store the science instruments and tools for Classes III to VII.

- ④ The room was equipped with such pictures and charts that the children of lower classes could also use and enjoy them.

The Science Room has increased the effectiveness of the teaching process. I have not made any formal tests to gauge the results, but the following observations may be useful.

- ① Since all children get first hand experience of the experiments, their observation and learning become deeper and long lasting.
- ② Many teachers of the *taluka* and district have visited our Science Room and they are also copying this idea.
- ③ The curiosity of the children has increased. They prefer to spend time in the Science Room.
- ④ Achievement levels in science have increased, as indicated by marks in exams.
- ⑤ Children of surrounding schools are also allowed to use the room.
- ⑥ Teachers have prepared many TLMs and use them, inspired by the room.

"Prakruti Udyan"

The science room alone is not enough. It has been tied up with a "Prakruti Udyan" (nature garden), *Vanaushadhi Udyan* (herbal garden), *Gandhi Kutir*, *Prerna Kutir*, Orchard Irrigation System and many other features. The people have not only appreciated the efforts but also participated actively in terms of financial and manual labour support. Many schools of this group, *taluka* teachers and teachers from outside my *taluka* have invited me to their schools to seek my guidance. There is no doubt that our school has become a model for many schools of the block. I am aware of three schools which have copied our path of development: Boika, Kanva and Nava Dhangeriya.

After five years in this school, I volunteered to move out to another school where my services could be put to better use. I was transferred to Kanva primary school in late 2003. All the children in this school belong to the scheduled tribes. The problems of attendance and enrolment were grave here. Again I resorted to my standard pattern of creating a beautiful garden and science room in the school as a starting point to overcome all problems. My prior experience has shortened the gestation period needed, and within one year, I was able to equip

the school with roads inside the school premises, a garden, an entrance, necessary furniture, and an irrigation system. We expect 100 percent enrolment, full retention in a couple of years. From these economically not well-off communities I mobilised Rs.60,000 for the school, which is earmarked only for improving the quality of education. The school then received a private donation of Rs.10,000 for a science corner, and when the children and community started

working on school improvement, the Adivasi Vikas Mandal donated Rs.13,000 for science instruments. Community donors provided for all the required furniture. Attendance has reached almost 100%. The children's regularity in attending school has been noticed by all the teachers and community members. With the passage of time I want to expand the science corner into a science complex (Vigyan Bhavan) in the school.

Retaining Children in School with Extracurricular Activities

If the future of India is created in classrooms, then the opportunity provided to the students should be of the best quality. This does not happen in the rural areas I have observed. I demanded transfer to a remote rural area in 1992, and went there by choice.

The initial condition of the school where I work at present was really depressing. The classrooms were in bad condition. The ceiling leaked in the monsoon. The floor was infested with termites and ants. Where to sit? I got these rooms repaired. I approached the village leaders and made the community realise that the school was a part of the public property and facilities. If the school were better, it would contribute to the betterment of their children. Gradually people realised that I was right. Their attitude of looking at the school as a government organization changed. They felt a sense of responsibility towards the school. As a result, the school now had four rooms and five standards. The school has been made attractive with whitewash and with quotations and pictures on the walls. Trees have been planted in the premises. A stage has been made for the prayer assembly. On both the sides of the entrance, two round seating places have been made. The school community and the village community have together made this school like an Ashram shala. Also the school participated in different competitions at district and *taluka* level and won many prizes.

Over the years I have realised that the school needs to be an attractive place for children if they are to be retained in school. Like the popular myth that the moon attracts a bird called *Chatak*, the children should be attracted to the school. With this in view, we have made the school environment better than what the children have at home and have succeeded in maintaining attendance in school. All kinds of pictures like the season cycle, the parts of the

body, birds, animals, songs, numbers, stories, have been made on the walls of the classrooms. Wherever the space was not sufficient, the ceilings have also been used. A nice garden has been created.

We make it a point to see that the different needs of the children are satisfied. For children of Classes I and II, arrangements for school bags have been made. I have a diploma in embroidery and stitching. I prepared school bags from empty plastic bags, for these children, during the vacation. A unique number is given to each child and this is written on his/ her bag. Children take their bags according to their numbers and put them back after use. Along with the bags, other things like slates, books, pens, pencils are kept. The government provides the textbooks free of cost for all children. I put a cover on all the books and write the name of the child on them. This makes it very easy for the children. The school has a first aid box which is also used by the village community. This has been extended into a regular vaccination and health check up programme.

There are many activities which keep the children busy and engrossed. Examples include, singing and story telling competitions, learning the art of *mehandi* and hair styling, good writing exercises, drawing, rangoli, clay work, paper work, and many competitions which are built around the children's skills. The winners are honoured. The names and photographs of the winners are given to local newspapers. I also organise *Ras* and *garba* competitions. I myself stitch the dresses. Three sets of dresses are prepared so that 36 children can participate at a time. I have also made the relevant ornaments for these dresses. Children come to the school regularly to participate in all such activities. This helps in doing the teaching work well. One activity that the children have enjoyed carrying out is the "Modern scarecrow". We used paddy straw, strings, wood pieces, old cloth and colours to make this scarecrow. First the straw is soaked in water. The wet lump is used to make the shape of a face on a

stick. It is then tied with a string. Then the hands and legs are made. The stomach and back are made using wooden sticks as supports. Thus we made a six feet tall scarecrow. We put a speaker on this scarecrow and a photocell on the other end. The moment the shadow of a bird falls on it, the scarecrow makes a high sound. It keeps on producing the sound till the bird flies away. This scarecrow was exhibited in a science fair and won a prize. All these activities, taken together, have addressed the problem of absenteeism.

Self Made Teaching Aids

Ank Gadi (Number Train)

The train is made from thermocole and colours. One has to invest time only. The train has different pictures of birds and animals in the place of compartments with numbers written on them. While playing with the train, children learn the numbers.

Barakshari Stand (alphabets stand)

Squares blocks of different sizes are prepared from thermocole. Letters are written on these with fabric colours. Similarly sized windows are made on card board. By the side of the windows the vowel signs of the Gujarati language are indicated i.e. *i, ee, u, oo*. The squares can be matched with the correspondingly sized windows, and the sound when a consonant is combined with a vowel can also be taught.

Sankhya Chakra

Two rectangular cardboards and two circular cardboards are used. Numbers are written on the circular boards. They are fixed on the sides of the rectangular boards. The circular boards have windows through which numbers written on the other cardboards can be read. This tool is useful to teach 1 to 100, place value and can be used in a number of ways.

Vachan Gadi (Reading Tool)

Two big rectangular boards, one circular board and a nut bolt, are required. The circular board is placed between the rectangular boards and fixed at the centre. It can be rotated, and the letters or words or any other matter written on its edge appear through windows cut into the top board. The teacher can order the difficulty levels—from two letter words to complex words, or sequence the words to form a coherent sentence, or combine consonants with vowels. Both sides of the circular board can be used, and with a little creativity, a teacher can design a variety of topics that can be taught with this set of boards. An addition that can be made is a box at the top, with windows through which thermocole blocks with letters or symbols can be seen. A teacher can use this addition to highlight particular letters or sounds or numbers or symbols that the words on the circular board (showing up in the windows) also contain. Many games can be devised around this combination.

I remember the words of Ravishankar Maharaj of Gujarat: Educational reforms are possible only with the support and participation of teachers. Teaching is the best occupation of all. Through education we can develop ourselves, our society and nation. Teaching can instil new ideas and virtues in people. Today a teacher has to think seriously about various teaching methodologies since academic requirements have changed. It is very important that the learner-oriented teaching style is accepted so that all students can understand the basics taught in primary schools. I took charge as a teacher in 1985. I developed a good relationship with the villagers and began to participate in their activities. Under the guidance of our HM, we conducted a door-to-door campaign for enrolling. In 1986-87 we achieved 100 percent enrolment of girl students. They continued in school, and the Government even gave us a prize of Rs.5000. With this success, we also mobilised donations for the school.

I was then transferred to a school in the middle of the desert. The village did not have water and electricity. There was no school building and one room of a *Panchayat* House was used. The village was small, and almost all adults were labourers working in salt pans. The children went along with their parents and so were unable to attend school. I believed that arranging for a building and motivating parents about schooling would work. This strategy paid off.

After a brief stay in another school, I was transferred to the Zainabad school in 1992, where I still work. This school has given me a long enough stay in one place. The village is on the edge of the desert. The total population of the village is about 5000, with the Sipai and Ghanchi communities (socially and economically backward communities) constituting 45% of the population. There are other communities like Rabari, Valmiki, Harijan, Baniya, Thakore, Rawal, Devipujak and Bajaniya. About a fourth of the village is involved in agricultural

activities. The rest of the village depends on agricultural labour and salt production activities. The village has a very ancient history. When I took over, the school already had a building which had been built before independence, and other facilities like urinals.

Teaching Reading and Writing of Figures and Place Value

Examples from my many math activities are described below. When I started teaching Class V, I gave the students a test in reading and writing figures and place value. About 60% performed satisfactorily. About 10% of the children were very weak. These 30 students were divided into two groups. Each group had one to two bright students.

Number Kho-Kho

I made cards of numbers 1 to 7, and five cards with 0. Five children were made to stand in a row; that made a series of zeros. Now the children were allowed to play kho-kho. Once a player gives *kho*, the child with the zero moves a little aside. For example, if a child with 3 gives *kho* to the fourth player from left, the resulting figure would be 4000. If a child with 3 gives *kho* to second child from the left, it makes 4030. Thus the game continues and the children sitting and watching the game write the figures made during the game. These are checked later.

Numeric musical chairs

This game is musical chairs, but there are seating sheets on the ground instead of chairs. Number cards, from 1 to 30, are hung around the necks of the players. There are five sheets on the floor. One player rings the bell and the players run around. The moment the bell stops, the players stand on the sheets. This makes a five digit figure. The audience writes the figure. The players go on playing and the audience goes on writing figures.

TLM for place value

I made a tool from five cardboard boxes. The first box had a zero in it. The boxes were marked out as units, tens, hundreds, thousands and ten thousands. Cards were made for numbers 1 to 9. Five such tools were made. The 30 children were divided into five groups. Every group was supposed to place cards in the boxes and make as many figures as possible. It was a competition among the groups over which group wrote the highest and correct number of figures. Now the children were able to read the figures with speed.

Cards of place value

I made nine cards each of 1 to 9, 10 to 90, 100 to 900, 1000 to 9000 and 10000 to 90000. Totally five sets of these 45 card packs were made. Five groups of children were given these cards and they were asked to make as many figures as possible and to write the place value of digits above them. The children enjoyed playing with cards and understood the concept of place value.

After these games and tools have been used, two tests are given, a 10 mark oral test and a 20 mark written test. The results have been very encouraging.

I have observed that children are not very comfortable with different concepts of geometry. I discussed the problem with the CRC. Finally I thought of something to make an effort to solve this problem. I made a model for teaching geometry. It was called geometry teaching through pictures. Using this model, we can clarify the concepts of different geometrical shapes. Many geometrical competencies of Classes IV to VII can be taught using this model, like ray, line, line segment, angle, types of triangle, circle, diameter, radius, rectangle etc.

Efforts to Prevent Drop out and Stagnation

There were about 14 children of the 6-14 age group who had left the school. I met their parents and enrolled these children in an alternative school—a mobile school run by an NGO called Gantar. Since then I have contributed to the training of the teachers of the NGO. Such association with NGOs which are working for the cause of deprived provides the teacher with an opportunity to contribute outside his or her regular sphere of activity. It is an important aspect of professional development of teachers which should not be ignored.

My mother has been a major source of inspiration for me. She sensitized me to the needs of society and taught me what I could do as an individual. I have taken a 'road not taken' attitude throughout, and giving up a permanent job in a higher secondary school, I became a primary school teacher. Even when I was teaching in the secondary school, I used to visit the village primary school and wanted to do something for the betterment of the children studying there. My mother, a primary school teacher herself, saw this and said, "It is easy to work in a high school. Try to work in a primary school like we do." I became a primary teacher and chose a village known for its notoriety and difficulties. When I joined the school, I encountered almost all types of challenges. I studied them under four categories: problems inside the classroom; problems of the school; teachers' problems and problems related to the village. I listed about 100 questions and made a separate file for action and follow-up. I discussed the file with a few social workers.

I started with the community. I held *gram sabha* meetings and informed the villagers about what I was doing and wanted to do. Also, I maintained systematic contact with the village community outside school hours. The village was a little way into the sea and during high tide could not be reached. No official was prepared to visit; the bad reputation of the village was also a problem. I spoke to the TDO and DDO and got sanctions for new rooms. These were built. During this time, only *Vidyasahayak* teachers (a form of para teachers) were being recruited. I requested the authorities that I be allowed to talk to the potential teachers. The DPEO saw that I was serious and gave me permission. I put my proposal to the group of recruits, honestly described the challenges and asked for volunteers. Seven young men from prosperous regions of the state volunteered. I took them to the village, before they signed their formal papers. A newly recruited teacher, Rajesh, heard about this, and he also requested to be transferred to my place. In short, these young teachers gave up more comfortably situated locations, and agreed

to undergo some struggle. This generated a new enthusiasm in me and my students. Together we started to execute the plans we had.

There were students who avoided the school as they had to walk long distances. They used to leave home for school but go off to play in the sea. Some of them had stopped studying for five years. Many of them were addicted to different tobacco products. Parents were indifferent to their education. Our first task was to regularize such children. We listed all of them, and then visited every child. We talked to the parents, and agreed to come to their houses to collect the children. We also targeted the more mischievous students, and divided mentoring responsibilities amongst us. All this meant that the teachers had to leave their homes at 5.30 in the morning. No one minded. We also had to spend Sundays and other holidays on community work. This was our first major success. As we went along, the list of problems or questions to be addressed increased to 250. This detailed problem identification and attempt to solve related problems together, have helped us deal with close to 150 in a matter of a few years. A few illustrative ones are described below.

Cleanliness and Student Uniform

Given the background of the village, we decided to redefine our understanding of a student. The usual assumptions about home support could not be made. I took up the responsibility of giving a bath to these children, combing their hair, cutting hair and nails, stitching torn clothes or buttons. After school teaching hours, some time was formally set aside for hair cutting and baths. This created curiosity among the villagers. Sometimes the stitching work went on into the night. Some older students of the upper primary classes began to do such work on their own—this was my intention, the students did not need to be told. This was important in creating an identity about

which the students would be proud. This attracted everyone's attention in the village, and became well known in the entire district.

The children frequently required a lot of attention in health matters. They required regular treatment for different ailments like cold, cough, eye inflammation, mouth ulcer, toothache, pus in the ear, boils, and minor injuries caused due to some accident or by thorns. I used to give primary treatment for such problems in the school itself. This was a great relaxation for the children as well as parents, and it was a great satisfaction to me. This facility of first aid is now available for the villagers also. Now, "If you have headache, go to the school teacher". In the absence of health facilities, such a social worker role in a teacher has a great impact on educational performance.

Confusion of Class I Students

I used to teach children letters and numbers using different shapes. But the problem was that those who knew numbers 1 to 100 did not know the letters and those who knew the alphabet did not know numbers. I thought this problem over for about two weeks and evolved a simple method to teach numbers and the alphabet. According to this method, I wrote numbers 1 to 9 in one column. Now the alphabets were grouped according to their shapes and these groups were written before the numbers. Thus the children could learn both numbers and alphabets.

About the Classroom and the School

There was a dire need for constant backup support for students. I decided to evolve a timetable for 'homework' in the teachers' houses, since parental support was not available. Due to this intensive teaching, the academic standard has improved to some extent. In these 'night group schools', the focus has been on extending topics in mathematics, science, Hindi and English which have been taught in school. One outcome was that the children started to collect information related to the various subjects on their own, and made models and charts for display.

The school needed to be equipped for good teaching. Hence, we decided to collect five rupees from each of the roughly 200 households as a donation. But the people

had already assessed our work, and to our surprise, collected Rs.25000. Elders whose memories went back to the time when India got independence, recalled that this was the first time when villagers had collectively pooled some money. The resources were used to buy sports equipment, books and some laboratory instruments for science. With this breakthrough, the village school was on the road to achieving sustainable outcomes. I was then requested by a neighbouring village to revive a school that was on its deathbed. The village was a two square kilometre island. I prepared a plan, and since 2001 I have been here. Here also I have done something similar, combining school and children's identity development, creative teaching, and community mobilisation. We also spotted opportunities which would enhance the identity and reputation of the school, and worked hard in that direction. When we came to know about a science fair in our area, we were determined to participate and secure first place. We worked hard for 40 days and secured first place in four events out of seven, second place in two events and third place in one event. In the district level science fair, we stood second in two events and a boy of our school secured the first position in the elocution competition. The model and presentation of underground irrigation systems in arid areas attracted the attention of the District Agriculture Officer who came down to visit the exhibition. Such events have added to the children's motivation and desire to do something different and recognizable.

I have taken up many activities which apparently look like social welfare and family welfare. But I personally believe that all of them have direct or indirect implications for classroom and school affairs. They are essential for school development and building bridges between school and community. Through the school I have successfully worked on issues like alcoholism, and addiction to gambling, tobacco and opium. I have facilitated the creation of alternative livelihoods for local liquor producers. These are the most blessed moments of my life. Many other teachers of the district and my colleagues have always extended their support and have motivated me. Some teachers used to write to me about their problems. My students have served as the best ambassadors of my activities.

I am working as a teacher in the Krushi Adarsh Anupam Prathamik Shala Tuwad of Sami, Patan, Gujarat. I was born in a well-off family, and my schooling experiences were pleasant. Two of my teachers influenced me a lot. One of them used to play the harmonium everyday before and after school hours. The music was so nice that I used to stand at a distance and listen to the music. One day he called me. I was scared. He was very gentle. Over time I became his assistant. I learned to play the tabla, dhol and harmonium by the time I reached Class VII. Today the key to my teaching success has been music. Fortunately, a secondary school was started in the village and I could continue to study. The HM of the school was often insulted by the villagers and the school staff as he belonged to a so-called lower caste. Caste discrimination was very prevalent in the village. I could not understand why these people were so harsh to a teacher who was so kind to his students and had profound knowledge of Gujarati. He was the one who inspired me to develop the courage to speak in public. He always appreciated my public presentations. I decided that when I became a teacher, I would organise such cultural programmes, invite him and honour him publicly. I do this always whenever I organise a programme. Though caste discrimination has almost disappeared in recent times, my bitter experience as a secondary student motivated me to become a teacher. Another teacher was very good at science, and he developed in me a liking for science. He also believed strongly in educational activities like tours and excursions. I am also indebted to Lok Bharti Sanosara, where I studied, and where my character was shaped. In this institution there was a *Balwadi*, in which the trainees used to present activities like stories, jingles, poems and action songs—a legacy of Gijubhai Badheka. This has trained me well in child centred pedagogy. Today I have a collection of about 400 children's songs, 100 jingles and a number of stories.

I asked for a posting in my own village, since the village had become divided along caste lines, the school

was in bad shape and the committed teachers had left. The school was barren and deserted. The instruments of the laboratory and furniture had been sold. The trees had been cut down. The HM and the villagers were equally responsible. Once known as a great school, it was now stigmatized. I was asked to work in the school for 15 days, and if I still wanted to enter this difficult place which was now a 'punishment posting', I could take it up. When I reached the school, it was deserted. Only animals, and their urine and dung, were present. Some children came around 11 o'clock. The HM came a little later. I did not get any welcome. Since I did not have an official order, he did not allow me to work. I immediately went to the Education Officer, got a permanent order and came back. I started with Class II. The first day I told a story. The next day I took a nail cutter with me, cut the nails of all the children and told them a story about the importance of cleanliness. The next day they all came with washed arms and legs.

Another problem was the irregularity of the students and very poor education of girls. I contacted parents to persuade them. Then I organised an NSS camp through the Principal of a college, who happened to be married to a woman from my village. This camp focused on school cleaning and cultural programmes for the education of girls. The girls from the college stayed for only three days but their impact was good. I then met the shepherds and got a promise that they would not use the school as a stable. The HM appreciated my work, and after 4 o'clock I was asked to go to the different classes one by one. During these interactions, I just sang action songs and told stories. When I went to Class V, I found that there was a boy who was regularly absent. I visited him and found him quite bright. I made that boy a minister (*mantri*) in the school, which not only made him regular, but also increased his motivation. He used to attend to tasks like classroom cleaning, getting the bell rung at the right time, and so on. I revived the library by collecting membership charges from some enthusiastic youngsters of the village. I took charge

of the public library, since it had children's books, and the same boy was asked to manage the library. He was given an issue book. He did a good job and the entire school benefited.

I wanted to plant trees, show some results and then ask the villagers for donations. Initially the idea was not liked. There was no water, and even tough trees found it hard to survive. I met the youth of the village, explained the idea and asked them for one week's labour support. One person lent his tractor, others helped in digging pits and with organic manure. About 1000 saplings were got from the government; these included flower bushes and hedge plants. The children supplied water from a nearby lake. This went on for a year, and the trees alone changed the appearance of the school.

The following year was a good year for agriculture. I met a former student of the school who was now doing well in the town. He came to the school and donated Rs.21000. The school building was painted with distemper, quotations were written on the school walls, paintings of national leaders were made, and educational pictures were prepared. Then a flow of donations started. When we collected one lakh, we got a new office. Every classroom was equipped with tube lights and fans and electrification. Another 1.5 lakh was collected through small donations. I wanted a *Bal Mitra Varg* for Classes I and II. With the approval of the school committee, I worked for two months and completed the room. All the paintings were made with oil paint. To open the room, we invited the local MLA and the Primary Education Officer, and all the teachers of the block. The MLA announced a donation of Rs.50,000 for a science laboratory. Some of the youth who had left the village had also been invited, and they donated some money. With this amount, the teachers and students collectively made TLMs. Benches for the upper classes were added, and a pipe line and electric motor for water facilities installed. Sports equipment was also bought. Thus, with community participation, the school prospered physically. Now my only worry was to make the school equally good in academic performance.

Academic Improvement

I studied the students of Classes I, II and III. They made mistakes in writing the letters of the alphabet. They could

recite the letters in a serial manner, but when it came to writing, the result was poor. I decided to change this, and arranged the alphabets in my own manner, grouping them in such a manner that children learned letters with a particular curve or shape together. For teaching mathematical tables, we used facial gestures and postures, and then made songs. These produced good results in mathematics and language competencies. We progressed to words and finally sentences. I think math tables are essential, and in the prayer assembly the tables used to be sung with music and actions. The children enjoyed the singing and movement and the burden of tables was removed.

Development of Virtues through Prayer Assembly

I felt that the children had stage fear; they were unable to speak in public. In some way, teachers may also be responsible for this situation. A child may stand up to speak with some fear that he may be wrong. And when his fear comes true, the teacher insults him in public. I spoke to the teachers and requested them to stop this practice and assured them that if they extended their support, I could make these children speak in public within one month. I formed a prayer committee. I helped them indirectly by providing some literature and we prepared a nice prayer book. We organised a small prayer gathering. In this gathering, the regular features were prayer songs, *Bhajan* and *Dhun*, action songs, thought of the day, daily news, children's news—all presented by students only. I selected three to four students and trained them in music. They played *tabla*, *dholak* and harmonium in the prayer gathering. Thus, once they had developed an understanding of singing and music, students of all classes felt comfortable singing the poems in their curriculum. The teachers were very happy.

I introduced another experiment to retain children in school. This experiment had two objectives, one was to achieve retention and the other was to give children knowledge of real life and practical learning along with subject knowledge. I started a movement called 'Garden Library' and appointed five students of Class VII as implementers. These children would place some children's books in the garden under some tree. Whenever the teacher was absent or during the recess, all the children

would go there and sit in whatever manner they found comfortable and read these books. Due to all these efforts, children now like to come to the school. Their knowledge of external subjects has also increased.

Festivals and Celebrations

I always felt that festivals should be celebrated actively in the school and all the village community should also participate in such festivities. I organised a kite flying competition during Uttarayan, and combined it with some educational inputs on the festival. Many festivals are celebrated thus in the school. I also made children motivate their elders to come to the school on Republic and Independence Days, since the parents would get a chance to see the hidden talent of their children and realise the amount of hard work we teachers put in. The children performed so well that the villagers were very happy and mobilised Rs.5000 and other gifts for the children.

Expanding to Taluka and District Levels

I felt that my students should not stagnate in the village. I organised a tour; the children had heard about tours, but had never been on one. I organised a tour to Nal Sarovar, a lake with birds. The children were thrilled. I collected Rs.25 from each child towards costs. They began to take an interest in sports, since I told them we could organise participation in sports competitions. After a lot of work, we won some district level prizes. This motivated the villagers. All the above traditions are still maintained, after many years.

Girls' Education, Enrolment and Retention

I wanted to achieve cent percent education of girls. I posed my problem to the Principal of our DIET during a training programme. He told me that he would send some teacher trainees to help me. I informed the village leaders. Previously I had hosted girls during the NSS camp, and

so no one had a problem. Fifty girls of a Primary Teachers Training college came to the village. The school children and the villagers gave a warm welcome to the girls and they also did a good job; moving around the village in the early morning, then yoga and exercise for all children, a prayer assembly, and variety of cultural programmes for the children. These girls met the villagers personally in the evening and gave their own examples, "Look at us! We are also young, but our parents have encouraged and allowed us to study up to the college level. Today we are moving in your village without any fear. This is also because of education." Such examples were very effective. A grand cultural programme was organised on the last day. The girls showed off their talent. When they left, the children cried. Even today some of them write letters to the village; for them also it was a good experience. Within one year, by late 1999, there was no girl out of school. Our experiment with a large number of women teacher trainees mobilizing the village through their own examples, has been picked up by many other schools in the area.

We have followed up this enrolment with efforts to keep them in school at least up to the primary stage. Our goal is that they should complete the cycle of primary education, and the trends over the last five years have been encouraging. Apart from activities to make the school and schooling interesting and full of activity, I have also taken up education in the midst of nature. If I am supposed to teach a lesson about a river, I should show them a river. There was a river about two kilometres from the village. The children had seen the river. I believed that if they were taught about the concepts related to a river, its origin, its making, and other features, the teaching would be more effective. Along with this, identification of trees, leaves, birdsongs, comprises our nature education. Due to this experiment, learning about natural phenomena could be made concrete.

The most adopted ideas (by other schools) are mathematical table singing with music, garden library, and nature education. These have contributed to keeping children in school.

I started my teaching career in 1963 in the tribal Dang district, Gujarat. After 18 years, by which time I had some sort of reputation as a good teacher, I was transferred to a primary school near the district headquarters, which was more like a large village or small town. I was told that the school was in a labour colony, and I was being posted there since the school had to be rejuvenated. The walls of the school were made of bamboo, but dogs, fowl and pigs used to roam inside freely. The floor was plastered with cow-dung. Whenever there was rain, the children had to be sent home because the roof let in a lot of water. The 47 students who were enrolled at the school were from very poor families. My first task was to get the children to come to school, because when I turned up, there was not even one child. I tracked them down and brought eight children to school. After the mid-day meal which we cooked, all the children disappeared. The next day was the same. For many weeks I persisted with my persuasion, but attendance was around ten children. The parents were convinced that schooling did not make any difference to their lives, "Our children have to labour for a livelihood, study is waste of time for us." I persisted, and attendance went up to 15. Then I decided to give the students a chance to play the same games in school that they played outside, including cards. They began to become regular, but came only 'to play'. For a few weeks I carried on with the games. Then I tried to associate number learning with marbles and other local games. With the cards, I brought in variations by instructing them to arrange the cards according to various colours and in ascending order. They did these things enthusiastically. Indirectly I was integrating teaching with games.

When the teachers from other schools knew that I permitted the students to play in the school compound and classrooms, they criticized me bluntly. They said that it was not appropriate for the teacher to allow such games in school. They believed that only the regular sports *kho-kho*, *kabaddi*, should be allowed. But I continued with my

approach of "fun and learning". The DPEO visited my school; the regular and higher attendance was an undeniable gain of my approach. He appreciated my work.

Gradually I extended the motto of learning through fun and joy through various activities like *vanbhojan*, picnic, collection of seeds and leaves from the jungle, collection of feathers and many other activities, stories, songs, painting and writing. By the end of the third year, attendance had increased and had become regular almost fully. In about six years, the enrolment reached almost full level—185 children. From the initial regular attendance of eight out of 47 enrolled, the attendance now became 175 out of 185 enrolled. Parental interest in attendance also went up. The District Education Council rewarded us with Rs.5000. We purchased mattresses and musical instruments with this money. Then in 1989 the school won the Best School Award of Rs.2500. The school building was renovated. Then we added four new classrooms. All these results enthused the children and the teachers. After I became a CRC Coordinator, I observed the attendance of four problem schools (Ghoghli, Kasavdahad, Pipalyamal, Nilshakya) out of the 14 in my charge, and got the teachers to follow my approach. It worked well and took much less time. Ensuring attendance is extremely important, and the approach of using local games—even if they are looked down upon by educational administrators—to combine learning and play, has now been taken up by other schools in my area. Some of my classroom activities that have tied in well with learning with fun are described below.

Teaching Fractions

While teaching fractions in Class III, I found that some students, while adding two fractions, just added the denominators and then added the two numerators. They followed the same principle while subtracting. On an average, out of 40 children, four used to do the problems correctly, 16 did not try at all, and 20 used the above approach.

Tools and material used: Thermocole sheet, coloured paper, pieces of different coloured cloth, charts of fruits, vegetables, charts, box of fraction teaching.

For teaching the concept of $1/2$, a thermocole sheet was cut into a circular shape and cut into two equal halves. To teach $1/3$ or $1/4$, a square cloth or paper was cut into three or four equal pieces. Then local fruits like guava were cut into the required number of pieces. All this was accompanied by questions to test whether the basic understanding of a fraction as less than one (which was what was to be taught, numerator being larger than the denominator was not to be covered), was being conveyed.

Three circles were cut out of thick paper, and three equal parts marked out. Now one part of the first circle, two parts of the second and three parts of the third circle were marked by thick lines and shown what parts of the whole circle they formed ($1/3$, $2/3$, $3/3$). After this, the children were given home tasks related to making such circles and marking their parts indicating $1/4$, $1/5$ and $1/6$. Most of the students did this homework successfully. This was reinforced with a simple exercise: Draw five circles on a thick paper. Divide each into six equal parts. Now paste over with paper of five different colours, one part of the first circle, two of the second, three of the third, four of the fourth and five of the fifth circle. Is the denominator the same? Yes. Then the learning is reinforced with questions on the activity. This is then extended to explaining fractions of different magnitudes: A thick paper is marked into five equal parts. Four parts are pasted over with one colour and the remaining one with a different colour, to show $4/5$ and $1/5$. Which colour covers more area? By how much is this greater? What symbols are used to represent greater than or lesser than?

Reinforcing the learning is structured around the following points:

1. 1 to 9 are non-fraction numbers.
2. $1/2$, $1/3$ and so on are fraction numbers.
3. A fraction is used to represent a quantity smaller than 1.
4. The meanings of the numerator and the denominator.
5. While reading a fraction, the numerator is spoken first and then the denominator.

6. The number indicating selected parts of the whole is written on the upper part.
7. If the denominator is the same for different fractions, the one with the bigger numerator is the bigger fraction.

It was then simple to extend the approach to adding fractions: Ten parts are marked out on paper; $2/10$ (two parts) were pasted over with one colour, $3/10$ (three parts) with another colour and $1/10$ (one part) with a third colour. How many of the total parts are coloured? $2/10 + 3/10 + 1/10 = 6/10$. This is then followed by the standard method of doing the sum with proper steps. A similar approach works with subtraction. My testing showed that close to 95% of the students understood the concepts well.

Solving Difficulties of Learning 'Multiplication'

One of my colleagues, Kamala Tandel, had a problem with teaching multiplication in Class III: why is the answer 0 when some figure is multiplied by it, and why is the answer the same number when it is multiplied by 1. I developed an approach to clarify these questions of the children.

Four small plastic bottles were fixed on a thick paper. Three toffees were put in each bottle and closed. The children were called to open them and count one by one. Then they wrote down the results: $3+3+3+3=12$; 3 appears 4 times and the total makes 12, that is $3 \times 4 = 12$. Then the demonstration is repeated with three bottles, with four toffees in each. The total is the same. Therefore, change of place makes no difference in the result. The exercise is repeated with different numbers, using seeds for larger numbers like eight or nine. The children had to open the bottles, count the seeds, and write down the answers. Interchanging the numbers results in the same answer. This is nothing but the simple principle of repeated addition, which is appropriate at that age.

Four match boxes are then fixed on to paper. One marble is placed in each. In another bottle four marbles are placed. Children are asked to count and repeat the earlier exercise. What is being done is all four marbles are combined into one bottle, and therefore if one bottle only is used, all four have to go into that bottle only, and therefore the answer will be the same. Now seven bottles are placed in a row with no marbles in them. On the other

side there is no bottle to receive the contents of the seven bottles. The children go through the exercise.

There are no marbles, that is 0. This means: $0+0+0+0+0+0+0=0$, or $0 \times 7=0$. This approach worked very well, and all children could answer the questions put to them, correctly.

Similarly, I have tried to teach geometrical concepts like point, angle, line segment, tangent, using simple charts made from bamboo sticks. I believe in finding out the results of whatever I do and so I always test the children before and after I try out something new.

It is important that a Class I child gets a pleasant introduction to the teacher, the school and the syllabus. I have been working in Class I for a long time, and my observations indicated to me that a proper introduction to the syllabus was very important. I consulted experienced teachers and studied the reference literature that was available.

Improving Mathematics Learning by Establishing Linkages with Other Subjects

Though this work was based primarily on the Mathematics textbook of Class I, I drew on articles in monthly magazines like *Jeevan Shikshan*, *Bal Srushti* and

math. I did an exercise to correlate the competencies and then prepared my teaching material. I picked up one competency and decided to devote two days to it. I asked the children to collect bottle caps, marbles and pieces of bangles. I gave them an oral test, and on the basis of the results, divided the children into two groups. Group A (the poorer group) was taught using the new method and Group B was taught using the traditional method. Then when I found that Group A had improved, I taught Group B.

I used examples from the other texts to teach counting. For example, the hen which laid eggs, counting with marbles. The students enjoyed this and there was a sort of

The final timetable after the initial experiment was like this.

Period	Subject	Competency	Statement of competency	Time (mins)	Time for correlation with math
1	Math	1.1.1	1 to 10 with the help of objects and pictures	30	10 minutes
2	Language	3.1.1	Letters identified separately and from words	30	10 minutes
3	Story telling		Rat with seven tails	30	7 minutes
4	Drawing		Making pictures of flag, ball, staircase, sun	30	8 minutes
5	SUPW		Making clay beads	30	10 minutes
6	Environment	4.1.2	Identification of common birds, animals and insects	20	5 minutes
7	Music		Action song	30	7 minutes
8	PT		Light exercises	30	8 minutes

Bal Murti, and on *Divaswapna* by Shri Gijubhai Badheka. I realised that the children spent about 45 minutes every day on mathematics. I also found that most competencies could be related with those of other subjects. The assumption I made was that when there was a gap in the math teaching, they would come across examples which had already been used in math, in the other subjects. This would reinforce learning at all levels, but especially in

competition among them to count. For the correlation with Gujarati, the students were shown a big circle with the letters of the alphabet written inside it. They were asked to identify a letter and draw a circle around it. The same exercise was repeated, but with the instruction being to draw squares. Then they were asked questions like, how many Ns are there in the circle? How many Rs are there?

Correlation with Story telling

I started with the well known story of a mouse with seven tails. Many students picked up the basic number very well and some of them came forward to tell the story again. Variations introduce some fun. The children were then asked to make different pictures; I also made pictures using colour chalks. They were asked to count the number of pictures. A number of questions add to the fun element of the exercise. In SUPW, the students make clay beads, and so a counting exercise was introduced. The children extended the activity to making garlands of different numbers. As part of Environmental Science, the children were shown different puppets of animals and birds and insects they could identify. Therefore, I designed questions related to numbers, and while showing the children the puppets, used these to guide the discussion. Thus, all the subjects were correlated with the basic counting competency of mathematics. And I found that such correlation certainly helped in attaining better performance in mathematics.

Sharing Our Experiences with Other Teachers

A group of my teacher friends and I got together and prepared a 111-page book, "*Shikshak Dwara Shikshan Vikas*" (Development of education through teachers). The book deals with the making and use of competency-based TLMs. About 1000 copies of this book were distributed to teachers free of cost. Our teacher friend, the late Dahyabhai Katariya, one of the authors of the book, had prepared about 100 low-cost TLMs for science. We had used these TLMs during our training sessions, and so the book had examples from our practice. At that time—a few years before DPEP was introduced—we were associated with the MS University of Baroda which wanted to work on management of TLMs in primary schools. An NGO, '*Swadesh*', was also associated, and it provided us the financial resources to print the book. The volume was received enthusiastically, since its particular focus was on TLMs for difficult competencies of math, language, environment and science. The book listed the

competency and defined it, described the making of the TLM, the materials required, the relevant reference literature, and so on. Many teachers have used DPEP and SSA teacher grants to develop the TLMs described in that book.

Making a Manakaghodi (abacus) for Teaching Place Value in Mathematics

After learning the numbers 1 to 9 in Class I, when the students progress to two-digit numbers, it is very essential that the concept of place value becomes clear. Using a traditional *manakaghodi*, in which three beads were placed in the units, the tens and the hundreds places, I asked the students what number resulted. The majority called out "three". To solve this problem, I taught the students using a song on place value, number cards, and a modified, self-made *manakaghodi* (not described here). In this activity also, I gave a pre-test and divided the students into two groups according to their performance. I did period-wise teaching of both the groups, and studied the results. This experience was presented in many teacher meetings, and has been used by many teachers. Over time, I have made many modifications to my *manakaghodi*. It is now used to teach place values up to 10,000, in Classes I to IV.

A Model on the Waning and Waxing of the Moon

Two lessons in the environment textbook of Class IV have content on the sky and bodies like stars, comets and planets. The textbook does have pictures on these, but they are either inaccurate or not very clear. In 1997, I came across some rejected TLMs. Out of sheer habit, I sifted through the pile. I found a cardboard model of the moon's various phases, presumably made by some teacher. I liked the idea and conceptualisation, but felt that it needed to be better. I spoke to two teacher friends and an electrician in my locality. We worked together for four days and came up with a satisfactory model, which used a light source and a screen to project the different phases of the moon. This working model has been found to be useful while teaching the changes one observes in the sky.

MANIBHAI R. VAGHELA

29

My wife and I started our teaching careers in 1972. The then DPEO Shri Buch told us, "Just remember you should try to reach school before the stipulated time and leave after it closes. Try to be an ideal teacher; no officer will be able to harm you and you will leave your service with dignity." This inspired us a lot and we have never disregarded the advice.

Learning the Initial Lessons

My first introduction to schooling was with a very honest, committed and talented HM Shri Yakubbbhai Alambhai Sheikh. He taught me lessons on ethics and values. He had managed to keep the school going when it was about to be closed. I did not want to let him down. The registered number of children was 115 boys and two girls. There were five teachers. The village was divided into two communities, Rathwa and Kolcha. Adult literacy was negligible, superstitions and social evils like alcoholism and gambling were rampant. The reason for poor enrolment was that people would send only one child to school, and retain the other children for farm and household work. Very often, children also worked for moneylenders. Initially, I was scared of the weapons people carried. But I was advised that it was safe to engage them in a dialogue. Gradually the people began to talk to us; we learnt their dialect, and our simple and direct approach appealed to them.

Efforts for Enrolment

When I felt that some ground work to prepare the community for specific educational issues had been done, I wanted to arrange a cultural programme to attract people. I asked my HM's permission to hold a programme on the Republic Day, 1976. To my surprise, he refused. His religious background forbade such an activity. Finally, after some discussion, he gave us permission to work on

our own. We organised a small cultural programme with dances and drama, to which the entire village was invited. People were surprised as they had never seen or heard anything like this before. One of the parents gave Rs.12 as a prize for the children. For me their new attitude was more valuable than the amount. This was the foundation of my later success. People started developing a positive attitude towards schooling and education. In the following year (1977), the registered number of children reached 219, and the proportion of girls also increased. Our habit of being punctual about timings also helped us in the overall impression we communicated to the village.

After three years I shifted my residence to the village. Initially it was very difficult. However, people used to come to my place at night to sit and talk. Such informal meetings and sharing strengthened our relations. Gradually the school improved so much that children from twelve surrounding villages began to come to our school (Rumadiya, Rodadha, Kanasava, Dungargam, Dhamanava, Vantada, Tava, Dhanpari, Bhumasvada, Nani Tekari, Panvad and Tani Titodi). Not a single child of school going age was out of school now in these villages—after about five years of effort. To maintain our contact with the community, we decided to visit one street every day at 8.30 in the morning. Apart from solving any problems that could potentially affect education, one major advantage of my visits was that no child roamed here and there whenever I moved around. They used to sit down for their homework. The problem of retention was almost resolved, with most of the children, especially the girls, continuing for at least four years. We monitored attendance, and managed to maintain an average of 90%. There are many blocks to universalisation, but it has to be done, and done from the village upwards.

Gradually people expected me to attend the auspicious as well as the sad occasions of the village. This helped me in gaining acceptance as a person with authority. An example: whenever someone died, the

tradition was that everyone who joined the funeral ceremony carried a piece of wood in his hand. At the cremation house, these pieces would be thrown into the pyre. I also started to carry a piece of wood during the funeral ceremonies. This made a great impact on the people. I was called upon to provide advice and arbitrate whenever there was a conflict.

To make learning more interesting for my students I started to use various methods like projects, stories, picture stories, dramatization, games, children songs, and practical experiments. The results were bound to improve. Those who passed out from Class VII used to be among the rankers in the high school. Because of this, children from the surrounding villages also tended to migrate to our school. The teachers in these villages requested me not to admit their children. I accepted their request but helped them to improve their own educational standards.

The 1976 Republic Day programme became a local institution over time. People from the surrounding villages came in large numbers to watch the programmes. Usually about 4000 people used to crowd into the school compound. We gradually included local items like a dance called Jangi Dhol, a traditional tribal dance. During the programmes, appeals were made for help with the physical facilities of the school. By 1992, with 551 students, the school facilities were under strain. But with community participation, they were improved.

Education of Girls

We decided to base our work on activities. These included competitions in embroidery, *mehandi*, *garba*, *rangoli*. The intention was to train girls in some economically useful cottage industry skill. The activities have definitely increased the enrolment and retention of girls in school. The work also generated some income for the girls. My wife took up the responsibility for this venture. We then felt we had to do something to make the girls and the community proud of the newly learned skills. We began to hold exhibitions of the articles made by the school's girls once a year. This was one important avenue for sales.

We were also on the lookout for specially difficult cases, the so-called 'unreachables'. An example follows. There was a girl named Jasoda K. Vankar in Class II. Her parents used to work at a brick-making site for six to seven

months a year. The site was three kilometres from the village. This hindered the girl's studies. This case was all the more tragic as the girl used to enjoy schooling. After studying the problem, I decided to offer my services. I had a bicycle. I began to go to the site everyday to bring the girl. After school hours I again used to cycle back and leave the girl at the site with her parents. This went on for a long time, till the parents realised the need to stop the girl from dropping out. This girl did not disappoint me. She studied quite well, qualified as a teacher, and is now employed. Many girls have followed her example. They have completed their higher education and are serving in various capacities. Such incidents contributed significantly towards changing the attitude of the society. Today, in the entire group of tribal villages, girls' enrolment equals the enrolment of boys.

Improving Quality

I realised that if classroom teaching quality had to be improved, some alternative methods were required. I discussed the idea with my colleagues. The idea was good but some money was needed to start anything. I started with whatever we had. I prepared a story in a drama form. The popular story of a cap seller and monkeys was performed with paper caps. A boy was made a cap seller. The children enjoyed the activity. Now they wanted me to "perform" every story. We prepared projects on all popular stories. Some village artists came forward to help with painting the stories; the carpenter contributed his labour to the preparation of implements. The children supplemented these with different models made from paper and clay. These activities cumulatively made the learning process fun.

Physical Development of Sama Primary school

When I was transferred to this school, I found the situation similar to the ones I had faced earlier. But the added problem was the negative attitudes of the teachers and the HM. I mobilised money for the school, but the HM spread rumours that I was swindling the money. I had to bring the donors to the school and show them the work done with their money. This slowed down the pace of work. Once when I asked the HM for chart and drawing paper,

he sarcastically told me to bring it from either my home or my previous schools. Such a response pained me. I bought drawing paper with my own money and decided not to ask for anything from the school contingency grants. I prepared charts, pictures and tools for classroom teaching and started my activity-based teaching. I also came into conflict with the HM when I suggested we should spend money on a *Bal Mitra Varg*, before buying fans. One teacher agreed with me. First, we donated Rs.3000 from our pockets. From one of my earlier villages, I called two students whom I had taught from Class I. They had done a course in Art. They helped me in preparing the room and painting the school. When the villagers saw this they felt that some 'real' work was being done in the school. Then the people's donations started coming in and we could equip the classrooms with material like charts and pictures.

Introducing Uniforms

I personally believe that uniforms create an identity which children like. I decided to introduce uniforms for the upper primary classes—V to VII. There were some protests. But

we made efforts to mobilise uniforms from donors. Once we had gone to buy some uniforms for girls from the money we had received as donations. We bought ten pairs. When the owner came to know of our activities, he was moved and gave 100 sets of cloth. These were distributed in the presence of the donor and the BRC Coordinator. For the last eight years, the donor has been providing this help.

Many incidents have forced me to reflect on my educational practice. I will narrate just one. The tribals with whom I worked hardly cared for matters like examinations. Often they took their children to the weekly market instead of sending them for exams. In 1978, a Class VII boy, Athiyabhai Rathva went fishing on the day of the math examination. He had learned that avoiding exams was all right. His family did not know where he was. After some searching, I found him fishing at the river. I got very angry. I scolded him for going fishing when there was an annual exam. I slapped him. My wristwatch fell and broke. I felt very bad for being so strict with the boy. Perhaps the boy had not known he had learned something wrong. But he changed, and today is working in the Indian Railways. Whenever he meets me, he recalls the incident and says it made him determined to study.

ANAVAR M. VHORA

I started my career as a primary school teacher in 1981, in a tribal area. The first problem I faced was that of language. I had to learn their dialect. I then began to teach children in their own language. The situation inspired me to prepare a dictionary of standard Gujarati and this particular tribal dialect. I worked on it but due to financial constraints, I could not publish the document. I alone used it, but when I was transferred from the school I handed it over to my successor, who used it.

In the next school, I noticed that the work done in science was not satisfactory. The laboratory was in the shape of a broken 'science box'. I made this my target. With the help of children, parents and some of my own money, I revived it. We took part in a district science fair and amazingly won the first prize. The next year we participated, but could not win. But again in 1990 we won the first prize and also participated at the state level. Due to this, my school has become known for quality science education. This recognition motivated the children and the community.

In 1991 I was again transferred, but in this school as well I took up special activities for science as a way of getting an identity for the school. I converted my innovative practices in the classroom into essays, so that others could access them. This school has won prizes at the district level regularly, and once at the state level science fair.

I used to read textbooks of Classes I to VII and then tried to look up relevant science-based articles in popular magazines and newspapers, and science magazines like *Scope*, *Wavelength* and *Vigyan Darshan*. Sometimes movies also helped. For instance, *Jurassic Park* was an important source. Later on, I have used *Minority Report* as well. I have also drawn on some of the gadgets I have seen in James Bond movies. I used to talk to students about the science in many of the gadgets or scenes. I have thus drawn on these resources for examples, so as to enrich the textbook. This approach works like a magnet in keeping students involved in the learning process. The class enjoys science learning.

30

I take about 15 minutes in the prayer assembly to bring in outside information and illustrations and some information which might at first sight appear to be irrelevant. However, it is still not out of place as science is holistic, though we try to study the subject in fragments. Such holistic pictures are then used to introduce new topics or lessons. Also, I take care to present proper evidence for whatever I present, so that children do not see it as 'a bluff' or 'trick' that is being pulled on them.

I have used my photography skills in teaching. I work as a professional photographer during my vacation. My favourite topic for photography is naturally "children". I try to express the various moods and states of children. My skills come in handy when teaching some topics like the one in Class V called "*Bilori Kach ni Ramat*" (game of magnifying glass). I use different kinds of lenses that I possess to teach such topics. Class VII has a lesson on reflection of light. First I draw a distinction between natural and artificial sources of light, give examples of both and talk about their features. The next feature is the intensity of light. I use conventional approaches to teach that light spreads in linear manner: to see a lighted candle through a straight plastic pipe and curved plastic pipe, or three cardboards with pinholes in them aligned in a straight line. Simple and well known, but the linkages with sources and intensity of light are important. I also teach the qualities of transparency, translucence and opacity with actual materials. Sometimes, with certain concepts, mythological stories help. Children know stories from the *Mahabharata*. *Abhimanyu* was killed by betrayal, and when *Jaydrath* humiliated the dead body of this warrior, *Arjun* took a pledge to kill him before the next sunset. *Jaydrath* is hiding in the army and suddenly it appears as if the sun has set. *Jaydrath* comes out and mocks at *Arjun* asking him to "sit at his own cremation". Suddenly the sun appears, and *Arjun* kills *Jaydrath*. The myth says that Lord Krishna hid the sun. Perhaps it was a solar eclipse? Then

it is easy to take up what is an eclipse and how solar and lunar eclipses happen.

My approach to teaching is very simple. There will always be problems and constraints in the way. All that one needs to overcome them are interest and a willingness to do something. Secondly, use your own areas of interest as resources. The bigger and graver the problems appear to be, the simpler the solutions. Finally, what is required is to reflect on past practice and employ the outcome to understand current problems well.

To help my children learn difficult concepts I undertook experimentation on my own. One of them was 'percentage'. Earlier this topic had been taught in Class VI but in 1989 it was introduced into Class V. This concept is taught after teaching fractions, ratio and proportion. My experience told me that this topic was difficult for children of Class V. I began with a test exercise on the basics (fractions, ratio and proportions). I divided the children into two groups of 25 each, based on the scores. In one group I taught by the regular method of textbook explanations and exercises. For the other group I used teaching aids and more participatory methods and also used exercise books prepared by private publishers. I divided the entire task into 14 periods; the first three were for the test and clarifying the required basics and the last three for tests and remedial teaching. While clarifying the basics I also ensured that they remembered the tables at least up to 10 and also 11 (since it is easy). I began with charts and pictures showing various things in different shapes, emphasising that comparing them with a visual glance was difficult. (In a box I arranged arrows of different sizes randomly and asked the children to point out the bigger one; without appropriate skills in judging the proportion the children gave the wrong answer.) From such visual comparison I moved towards a complicated example requiring mental comparison e.g. asking them if some one gets 490 out of 700 and another student gets 520 out of 800, whose score is larger? Here too the children couldn't answer correctly. Then I related it with earlier illustrations pointing out the 'base' (unit) that was finally used for comparison e.g. to compare arrows length of the base line was important. I explained that when a base of '100' is used it is called percentage, and there is a method to find it. Then I gave a lot of illustrations. I then taught them about 0%, 100% and more than 100% by giving

examples. Thus I developed the concept further by giving many illustrations and exercises and also taking a test of smaller sub-units. Here I avoided the usual practice of giving most of the sums/exercises as homework after explaining a few examples in class. Generally children are not motivated to complete such work on their own since they are often stuck without home support. In the eleventh class I took a test in both groups. I found a good outcome in the experimental group, but had to do some remedial teaching in the next two. The last class was devoted to testing.

Science Teaching

Up to Class IV children study science as EVS. From Class V onwards science is taught as a separate subject. My observation is that children find this transition quite smooth, but in Class VII the difficulties begin. The classification of lessons into the three sub-branches of physics, chemistry and biology is also introduced at this level. I wanted the children to develop an interest and the right attitude for learning science, so that they could cope with the difficulties. I thought of doing it with the help of small experiments. I began with lesson 1: forms of matter. I studied all the textbooks and supplementary material prepared by private publishers for Classes III to IX, to identify material for this topic. I prepared a list of experiments from all these books. I also took a test of the children and divided them into two groups of 25 each. One group was taught using the usual classroom method, and the other was exposed to the experiments and charts approach. I borrowed any instruments I needed from a nearby high school.

I planned for a total of 13 periods, and divided all the concepts into smaller units. My explanations include use of simple charts on carrying out experiments. To teach 'what is an element', I begin with a chart showing objects or articles made from plastic in a number of photographs. Then I explained that these objects are made of plastic. Therefore, plastic is a material from which they are made. Then I show articles which are made of two or more types of material like windows: from iron and wood. Then I show trees, remove the bark, and explore the trunk of the tree. Similarly with powder to explain the concept of particle/ basic matter of which a thing is made. Another

chart shows pictures of all the famous scientists from India and other countries who contributed to the development of the concepts. The chart gives details of such individuals and their contribution. Then I also use very simple games to help them imagine the idea. For instance, I ask the students to stand very close to one another, linking their hands and legs with their partners on both sides, and then ask them to make an effort to move apart without untying their hands and legs. Naturally the students are unable to move. With this I explained that in a hard object, the particles are so close and well tied that they cannot move apart from one another. The same method was used to teach the arrangement of particles in air and water (liquid), explaining free movement and limited movement. In the next phase, I explained how temperature reduction or increase and pressure variation affect the form of elements. The scientific instruments to measure temperature and pressure, thermometer and barometer, were introduced. I concluded the study with an explanation of the spread of light weight particles in comparison with that of heavy particles, by conducting two experiments. For one experiment I used a fused tube light bulb. It was cleaned carefully from the inside, to make it into a transparent thin glass tube. Three girls were asked to demonstrate under my supervision. Two girls stood at either end of the tube. Both girls were asked to insert a cotton bud at their ends and cover the ends immediately with a plastic bag and rubber bands. One bud had been

dipped in HCl (Hydrochloric acid) and the other in NH_4OH (Ammonium Hydroxide). The children observed. Gradually, near the bud of HCl, a white ring was formed. I explained that NH_4Cl (Ammonium Chloride) was formed due to the interaction of fumes of HCl and NH_4OH . Then I asked them why the ring was nearer to HCl bud and not in the centre. I explained that the particles of HCl are heavier than those of NH_4OH and therefore the ring is formed nearer to HCl. To build the idea further another experiment using KMnO_4 was carried out. Thus the lesson was taught by developing it in a sequence, using small experiments such as these, supplemented by charts, illustrations, and information on the scientific development of the ideas. Besides this, the students were trained to conduct the experiments. This helped in inviting active and long lasting participation. I have carried out many other activities of a similar nature. For example, the lessons on light (lesson 6: light and lesson 7: reflection of light), offer the teacher a lot of scope for creativity, but I always link the lesson to what was done in earlier classes—for light, the building is on relevant lessons of various grades like lesson 26 of Class I (sun, moon and stars). I have no doubt that teaching science at the upper primary level through student involvement in experimentation will help children overcome their difficulties when they progress to a level when all of a sudden they are confronted with an extra load to understand.

Once I was in a class where I found that children would ask many questions, but hesitated to do so. Many of them were murmuring about their doubts among themselves. I have seen, sometimes, they even do not ask questions of the teacher although amongst themselves they talk to the teacher. So with the idea of providing an open forum for questioning which does not require much in public I started a 'wonder box' where children drop their question-chits into this box. The children can relate to the syllabus or anything else in the school (including parent-school relation). Every week, every week I get about 25 question-chits. All questions are answered on Saturday in a general assembly so that the questions and the solutions are available to all children. This activity was so successful that parents got

be excited and encouraged their children and ideas to ask questions. The concept offered a good medium. The children have been able to communicate with the teacher and ask questions with other students, express ideas about their school and questions to or learn to communicate with government. Children are asked to do the following:

- (a) Draw a box on a piece of paper and then write down a question or a doubt.
- (b) Write the question or doubt about the activities they do in school.
- (c) If there is a problem in understanding the relevant subject and activity, write about the problem, such as problem in understanding water and electricity.
- (d) Write the children's questions weekly about the syllabus and activities in the school.

RAJESH M. BANKAR

I am working in a Zilla Parishad school in Pune district, Maharashtra. With the purpose of inspiring children to learn on their own initiative I started a "weekly self assessment" experiment with my Class V students. I felt that this would help in removing the fear of exams and help children develop confidence in their learning. I used a group approach. Class V children are divided into five groups at the beginning of the academic year. Every week, the topics/subtopics that have been taught are allotted to the groups; the groups have to prepare a "questions list" from that unit. They are instructed not to take questions from those given as exercises at the end of the chapters or lessons in the textbook. Each child in the group is supposed to prepare questions along with the answers, and take them first to her group. The groups are not allowed to borrow questions from each other.

On the following Saturday each child is provided with a ruled sheet of paper. I write the questions brought by all the children neatly on the board and also classify them under certain headings like fill in the blanks, answer in one sentence etc. This is then treated as a test of 20-25 marks. The students are given 45 minutes. Then the answer

sheets are given to students themselves for correction, but care is taken to see that a child doesn't get his/her own paper. Under the guidance of the teacher, students check the answer papers. A note is then made of all the marks in a register named 'weekly self evaluation'.

The major outcome of my activity was that gradually the exam phobia decreased since the children were solving the questions prepared by their own peers. The students studied with great concentration and dedication because they wanted to frame questions which other students would find hard to answer. They developed skills of framing questions and presenting them. Students could see their answer papers being checked by other students. This made them aware of the mistakes that they used to make; subsequently they started to take precautions. The concept of self-learning got an impetus. Students started to study on their own at their homes. This helped in generating a positive attitude towards the school. I could judge the progress of the students well, and it became easier for me to plan remedial classes for students on the basis of the evaluations.

ANANTA BAODHANKAR

32

Upasthiti Dhvaj

The problem of poor and irregular attendance is a persistent problem in not only backward rural areas, but also in relatively better off rural areas. Since irregular children usually do not get parental support at home, missing out on school causes severe problems in the continuity of learning. This leads to uneven learning and an inability to meet the expected standards. I was confronted with this problem. I came up with a simple idea. Children were informed that a class as a whole would be rewarded for good attendance with a flag called "*Upasthiti Dhvaj*", which they could put up in front of their class. The task of monitoring the attendance was given to children, with the class monitor taking up the responsibility for recording. The class with 100% presence got the chance to display the flag. The outcome of this 'trick' was that after some time, I had to make seven flags. Class attendance is now very satisfactory.

Weekend Question Box

Once continuity in learning was there, I found that children would often want to ask questions, but hesitated to do so. Many times I found them murmuring about their doubts amongst themselves. I have seen, sometimes, they even discuss norms/rules/teacher behaviour amongst themselves but do not talk to the teacher. So with the idea of providing children an open forum for questioning which does not push them too much in public, I started a 'weekend box' in school. Children drop their question-chits into this box. The questions can relate to the syllabus or anything else connected with the school (including parent-school relations). On an average, every week I get about 25 questions. The norm is all questions are answered on Saturday in a general assembly so that the questions, and the school's answers, are available to all children. This activity was discussed so much at home that parents got

interested in it. Many parents have started coming to school on Saturday mornings to listen to the questions their children ask and the answers. In addition, parents have started putting their own questions.

An extension of this activity is the monthly discussions with various professionals and people performing certain roles in society. Some of the themes that appear in primary school lessons are best illustrated by exposure of the children to real life interactions. On this assumption, I invite two or three persons (doctors, lawyers, postmen, police functionaries, bank officials, *sarpanch*, *gram sevaks*, businessmen, officers, army men) every month for discussion. Children are informed in advance and have to prepare the questions that they would like to ask the visitors. The outcome I have noticed is that is children's confidence improves and so they do not hesitate to ask questions.

Teaching Children to Communicate through Postcards

Going one step further, I thought asking questions could be extended to communication of questions and ideas to distant receivers. The postcard offered a good medium. The objectives fixed were the following: communicate with relatives, maintain relations with other students, express ideas about your own school, put questions to or learn to communicate with government.

Children are asked to do the following:

- (a) Decorate or draw on postcards on their own and then post them as greeting cards for relatives.
- (b) Write to education officials about the activities they do in school.
- (c) If there is a problem in the village, identify the relevant official and inform him about the problem; such problems have mainly related to water and electricity.
- (d) Write to children of schools in nearby village about the syllabus and activities in the school.

'Yoga for Recall' Exercise

Though yoga has been introduced in all schools in Maharashtra, it is carried out only once a week in the Physical Education class. By the next week's class, children forget what they did the previous week, since there was no mechanism for regular practice or follow up. I found this similar to what happened with some subjects, where, in the absence of support in the home environment, the students were unable to connect what happened in the

previous class with the present. So I linked yoga with subject teaching for the first five minutes of a period. For example, as soon as the history class starts, all children are asked to do deep breathing three times with the sound of *Om*, as taught in the yoga class. After that they are asked to be silent and recall what was learnt in the last history class. This helps in bringing their attention to linking of previous learning with the present, and also in using some of what was taught in the yoga lessons. I have found that gradually concentration of children improves as well.

I work in a Marathi-medium school. The students often complained that they very quickly forgot what they had studied. I used to feel that 'only teaching' is not the way to develop rural students; some other ways of learning should be planned. There was another problem. Around three years ago the number of students dropped alarmingly. This was a cause for worry. One day I witnessed a sad incident in class. Students were eating their lunch together; one girl hadn't brought her tiffin box. She told me, in vague words, that there was some problem at home. All the other girls knew her history and what had happened. I realised that there was a lot of informal interaction which a teacher does not understand or come to know about. I happened to meet a management person around this time, and he spoke about a 'quality circle'. I interpreted this to mean a group working together to solve any problem. I felt that this could be a good way of letting children learn from each other as well.

I studied the idea of quality circle and made a structure for implementation. A "Group Study Circle" (GSC) is a group of students. A class is divided into four or five such groups. Each chooses a group leader, who is responsible for conducting the discussions. The leader is changed every month, so that all students get a chance to exercise leadership. This group study circle gathers at pre-decided times, with specific purposes.

I changed the timetable to accommodate the Group Study Circle structure:

Up to 7.00 am: Morning session

10.30 a.m. to 12.00 a.m.: Study Hour

12.10 p.m. to 5.10 p.m.: Regular school

5.15 p.m. to 6.30 p.m.: Evening session.

The morning and evening sessions are for co-curricular activities. From the month of October which is the beginning of winter, the morning session is called the Winter session of GSC. On the first day, I ask the students to collect pieces of wood and paper for a fire. But I do not light the fire. I involve them in warming up exercises; then

I ask them, "Is there a need for a fire?" The answer is always "No!" I then teach them various activities in physical education: warming up, aerobics, gymnastics, yoga, meditation etc. I have found out that they practice these activities at home too. The current year is the fourth year of this pattern of activity.

The purpose of the study hour is education through discussion with one's peers. All the students pose problems individually, on any subject. The group leader writes down the problem. After that, students discuss each problem and find out the solution. The students learn about various academic topics. The students are not always correct in their conclusions, and so the teacher has to be very alert and attentive to ensure that the students do not go away with misconceptions. The other important objective is to develop all the students in the class. I ensure this through a group Test. I tell the group leader that it is his or her responsibility to conduct the studies of the members in the group on the particular topic for the test; the marks of all the papers in a group will be summed up, and the average will be given to every member. This is used only to develop all the students and the marks are not counted in terminal or annual exams. This makes each group streamline its study procedures and maximise group averages.

I have observed the following development in my students:

- 1) Interest in study
- 2) Reading and writing skills
- 3) Personality development (leadership, public speaking, team work)
- 4) Knowledge about agriculture and social work
- 5) Sports and Yoga awareness
- 6) Spiritual education
- 7) Art (music, drawing, acting, dancing)

The experiment has been particularly successful in English language learning. My role as a guide has become

easier and the students make their learning strong in their own circles. If any topic is not solved or is a hard topic, the group leader discusses the topics with other group leaders. If all of them find it difficult, they come to me and we discuss. I never tell them the answer directly.

Discussion is our major goal. It is my experience that students can develop their own styles of leadership. My students now arrange programmes, games, picnics, competitions, visits and study tours through their Group Study Circles.

I work as a teacher in the Galvha upper primary school of Yavatmal, Maharashtra. I have found that the attention paid to teaching English in rural areas is extremely poor. The argument is that learning reading and writing in the mother tongue is itself difficult for rural children. There is no doubt this is true, and education in one's mother tongue has some significance, but competence in English will help rural children improve their chances in life. I became interested in teaching rural children English in new ways. I obtained a postgraduate certificate in the teaching of English from the Central Institute of English and Foreign Languages. I have used this opportunity to pick up the idea of developing a laboratory for English teaching. The idea itself is not new, but usually a lab is used to teach correct pronunciation. The modification I have made is to develop a lab that is focused on the entire syllabus of Classes V-VII.

I have developed the English Language laboratory with just community support. The equipment in the lab includes a television, from which educational programmes are used as teaching material; a VCR with video cassettes specifically for the teachers, and also for the students; a tape recorder, with audiocassettes based

on the syllabus; an overhead projector and a slide projector (for which transparencies and slides are prepared by the teachers themselves); about 170 carefully prepared charts that deal with the syllabus content; games (including electronic games) that can be used by the children for self-learning.

Other material includes letter strips, word strips, sentence strips, Formica white board, flannel board and blackboard. Everything is so arranged that children get a feel that they are in a laboratory. This sense of 'experimenting' helps them learn better. We have also added many books related to English language learning for Classes I-VII, handbooks and grammar books. The English classes of all classes (I to VII) are conducted only in this laboratory. Although the lab is in a village, teachers and parents from other districts have visited it. Any topic related to Classes I-VII English syllabus can be taught here, with the help of interesting supporting material. The lab has been appreciated by education officials, and since my results have been good, I have become a state resource person. I am now doing my doctoral studies on the development and use of such a laboratory for teaching English to Classes I-IV students.

Good handwriting is one of the foundations of all round development of children. Beautiful handwriting is an indication of the potential of children to develop as artists and painters. Most people who do not possess good handwriting tend to believe that "beautiful handwriting is god's gift" or that it is a matter of bad luck. Generally, a teacher's handwriting has an impact on students' handwriting. But the following obstacles come in the way of developing a good hand.

1. Carelessness on the part of the children and the teachers.
2. Restlessness that doesn't let the children concentrate.
3. A lack of interest in developing good writing skills.
4. Lack of opportunity for self-expression.
5. Lack of home support and poor interaction among the parents, the teachers and the students.
6. A lack of confidence.
7. Failure to work on improving handwriting over a long period of time.

There are people (apart from those who believe good handwriting is god's gift and those who believe that the quality of pen and ink are more important) who are motivated to improve their own handwriting. I felt if my children could fall into this category, the problem would be solved. So, I decided to improve handwriting of all my students. The three essential components were proper planning, use of motivational techniques and following up the implementation. I gave four steps to my experiment: aiming, planning, believing and working.

I started with 22 children (11 girls, 11 boys) of Class VII, with a time frame of three months in mind. These children were to form the initial core group of 'child trainers'. The number appeared to be right given that I had to supervise, examine, and evaluate them by myself, during their initial training. After the training, every child had two new children attached to it, so that groups of three were formed. This way, the entire class went through the experiment of developing good handwriting. My focus during the

handwriting classes was not on grammar or correct spelling. For these equally important areas, I added two extra periods everyday, one after the prayer and the other after school hours.

Given that one of the obstacles was poor parental involvement, the parents were asked to respond to the experiment's ideas through a questionnaire which also gave information about good handwriting and the proposed method to improve handwriting. Similar tools were used with the students, so that some kind of a baseline or benchmark could be established for future evaluation.

The key to the method is 'keep believing'. At the beginning of each session children would have to meditate and tell themselves things, following the instructions of the teacher. For instance, "Listen to me, tell myself that I want to be an artist or a painter. My handwriting has to be better. My handwriting portrays my character. My persistence is important." The next step is teaching students the use of a pencil, and allowing them to practice simple strokes and letters. This was followed by sentences and other items. Thus, the focus on self-belief and providing students the opportunity to develop a belief that they can, were the only key interventions.

For evaluation, I chose the route of handwriting competitions. Alongside I started a magazine in the school that carried handwritten poems, essays and stories. This was followed by elocution/debate competitions to further consolidate the self-belief. By the end of the first month, the results were evident. It was possible to divide the students into four levels, based on their progress. The students were then involved in the preparation of teaching-learning material like word-strips and sentence-strips. One key benefit was that idle students started to act. Three other benefits were apparent: order and cleanliness in the children's activities, significant improvement in the self-study habit, and greater levels of patience. More importantly, all the students made progress, irrespective of their starting points. Communication increased among the parents, the teachers and the students.

I work in the Prathamik Vidhyalay, Sidko. One of the most common problems among the students in the many schools that I have seen is the lack of a good vocabulary. While writing essays or describing pictures, children are not able to use proper words. They themselves generally do not take the initiative to read on their own or to write. Rural parents also focus only on what is given in the textbook. A competency based syllabus was introduced in 1997 and the lists of competencies are detailed clearly. However, teachers generally do not focus on the competencies of area 9, which deals with developing vocabulary. Other competencies are achieved by following the textbook, but this area requires other approaches and so often gets neglected. I made efforts to develop the vocabulary of not only my Class IV children but also made this activity compulsory for all children in the school.

Everyday when we give homework to the children, I ask them to write one vocabulary exercise: "Write the name of the things used/seen at ... place." This way, one notebook is filled with the vocabulary exercises. The children are asked to wrap this notebook with the cover of their choice and it is called "*shabdakhajina*". The parents have appreciated this by saying, "You have come out with a good trick." Once I had asked children to write the names of the things/materials used in the *poojaghar* (a corner in the house where the idols of God/Goddess are kept) and in the kitchen. The parents later told me that the children picked up everything in the *poojaghar* and in the kitchen one by one and asked questions. Everyday I ask the children to write about 10-20 words. They started developing an interest in reading and even the slow learners improved. I told children that I would check their notebooks before the beginning of the annual exam and the one with the best handwriting would get a prize. This motivated them to pay attention to their handwriting as well. To add to this activity, I kept chits with a word written on each. I called each child one by one and asked her to pick a chit and say a few sentences based on the word/

theme written on her chit. This helped the children express their thoughts without fear. I have extended these activities to the entire school, by making lists of activities for all the classes. My evaluation indicates improvement in five areas: progress in reading, the desire/motivation to find out something on one's own, developing the habit of reading material from outside the textbooks, the development of vocabulary (knowledge), skills in using the new words (application). Some of the exercises (which have also been disseminated to teachers in other schools) are:

Class I competency 9.1.1, word target 1500

1. Give one letter everyday and ask the children to write 15-20 words beginning with it. Words beginning with vowel symbols attached to the given letter are allowed.
2. Break down the bigger words and make new 2 or 3 or 4 words from it. E.g. *Ahmednagar: nagar, Ahmed*
This exercises should be given only as homework.

Class II competency 9.2.1, word target 2000

Everyday 10 words are to be given, adding up to about 2000 words in a year.

1. Give a simple topic and ask children to write the words associated with it. Examples are: different animals, birds and flowers, villages, grains, things used in the *Poojaghar*, things at home, games, names of girls/boys, colours, names of round objects, and so on.
2. Add the relevant *pratyaya* (prefixes/suffixes) to make new words; e.g. *hajar-gairhajar* (present-absent), *lekhan-sulekhan* (writing-good writing). There are many exercises in Class II for learning of *pratyaya*, which can be used.
3. Break down the bigger words to make smaller words.

Similarly at Class III (word target 3000) and Class IV (word target 4000) levels, exercises like writing synonyms,

opposites, names of herbs, religions, religious books, saints, rivers, writers, local officials etc. can be given.

Vachan Pustika

Another relevant activity is that of making reading materials. The children are asked to cut the material (headlines) appearing in the newspapers and stick them on to paper. I give them the nature of the topics about which headlines can be cut. The compendium is called a *vachan pustika*, and is kept in a cupboard. Whenever the children feel like reading, they can take it out. This activity is done in groups. Once the children are instructed well, they are able to do it on their own. I did this for Classes III and IV. Sometimes newspapers focus on a single topic for many days and the collection makes especially good reading material. I have classified the subjects into various categories, like moral stories, sports, values, *guru-shishya*, culture, science stories, herbal plants, the problem of water shortages, and so on. The Class IV students prepare about nine files every year. I ensure that topics like crime, suicides and politics are not given. Also, I generally try to find out which newspapers children get at their homes before giving them any topic.

Eating Habits

The parents of young children often complained that their children do not eat vegetables. So I did an activity for Classes I to IV. I declare "*Annavishyak Jagrukta*" week/ fortnight/ month, with the help of the parents. The homework is, "Tomorrow's tiffin will have (name of vegetable)." Everybody, including the teachers, would bring the same thing the next day. Then the teachers would

discuss the nutrition value of the vegetable and its other features. The parental feedback has been very positive.

Supplementary Exercises

I feel that in schools teachers generally focus on questions-answers related to poems/prose, but there are no additional activities about the lesson. I therefore give exercises/homework to my children not just about questions related to lesson, but also about different activities that they can do. For example, after teaching the poem "*kaunachim kaunachi?*" (about self), I ask the children to write down the names by which their mothers address them, stick pictures of a child and its mother, and so on. They are told to collect the pictures from advertisements; or to use pictures of animals. A similar exercise done during *Ganesh Utsav*, is the collection and pasting of *Ganesh* in his different *roops* (forms). Another example, linked to social studies, is the collection of the pictures of famous temples around Nasik. These activities involve pasting cut-outs on display paper, and the children enjoy them. To teach math, I use daily life transactions in a 'bazaar' which I have created in the classroom. I keep various things in small baskets. The concepts of weight, addition and subtraction, and other mathematical operations, are taught through the 'bazaar'. I also place many games in this bazaar, so that the children can play by themselves. One example is the *Ghar-Khidki* (house-window). This is basically a card board house which has many squares with various letters written in them. Small windows with various numbers of squares, like two squares and three squares, with different letters, are kept separately. The children have to pick these windows and try to fix them on different parts of the house to form meaningful words. This activity is usually done by groups of five or six children.

I started my teaching career in 1996. My first appointment was in a tribal village. My current posting is also in a similar school. The major problem for the children coming to school in this Nandurbar area is that of the difference in the language spoken at home and the official language to be learned in school. The children would know only their home dialect, and use this in school. They couldn't read what was written in the textbook even after I taught them the letters several times. I used to teach the Marathi language and their dialect in sequence to make them learn the relationship, but it did not work. This problem was evident in all the grades, from I to IV. Once, while struggling to help a child read something from the "*Bal Bharti*", I noticed the child started to read a few words correctly. On probing, I came to know that the child had learnt just on the basis of the similarity in the shapes of word. Those words were read by recalling the shape and the associated sound. After realising this, I thought of using the tactic for all children.

I first read the *Bal Bharti* for Class I thoroughly and classified the words into single letter words, two letter words, three letter words, four and five letter words and words with conjoint letters, for each of the lessons in the textbook. The classification for each lesson was written down on a separate sheet of paper. With this preparation I began the language lessons in the classroom. First of all I wrote down the words of the first lesson on the blackboard and read out/pronounced each word loudly. Initially I just kept on reading each word from a list of two and three letters words, one by one, and asked children to recite after me. Repeatedly, they were to see the word and then speak it out. What I noticed happening was that the children memorised the sound of a letter and associated it with its shape. All this while I did not introduce them to specific letters. Then I prepared word strips for each of the words

from the lesson being taught. I showed them the strip and pronounced the word; at that time I pointed out the similarity of shapes with the words written on the board. After reading the words written on the blackboard again and again, children could read the words by remembering the shape-sound combination. I allowed a gap of two to three days before the next lesson. The sequence of activities was repeated. This way I completed 10 lessons from the *Bal Bharti*. Then I introduced them to the letters and syllables. I found they did not face any problems in learning. The children had learned both the consonants and the vowel sounds and symbols. So it was easy to build on their knowledge of the vowel symbols. The approach was similar for joint letters. After this was done I focused on the meanings of words, but with the words drawn from the dialect. I wrote a few words and the children could read them on the basis of the shape of the letters. The meaning would be known to them; then I wrote the same word in the official language, and the words and their meanings were compared. I did this continuously for eight months, and then kept it up with breaks. The resources I used were the textbook, thick paper for the word strips, coloured papers, cut-outs of the vowel symbols, and the blackboard. I still use this method for Class I.

One outcome I did not anticipate was that children developed a fascination for looking for similar shapes in nature and tried to pick up objects which had letter-shapes. These were brought into the classroom. The work has been appreciated by the authorities and has been shared with other teachers.

Note: Mr. Khairnar is also an anti-superstition activist and conducts scientific experiments to show how people are fooled by tricks. He has also won awards for his social work contribution.

Irregular attendance and absenteeism of students in district *panchayat* primary schools pose severe problems for teachers. Many factors are responsible for this situation. Very young children may be afraid of the school and the teacher. Teaching aids and methods which may not create the proper environment in school, parental non-involvement, and many other hurdles may also be responsible. I realised that a teacher has to get involved with the children if good results are to be achieved in regularity of attendance. One approach that struck me was to use music, which attracts children. For a teacher to be involved with children through music related activities, the teacher should also know some music. I initially focused on songs: *kirti geet*, *badbad geet* (jingles), prayer songs, *sfurti geet*, *desh bhakti geet*. I found singing songs made the environment lively and also developed in children an interest in studies.

A statement by some visionary that I had read—"if you tell me which songs are there on lips of your children, I can tell you the future of your nation"—inspired me. Another source of inspiration was patriotism and the need for a reinforcement of our own culture in the face of the influence of western culture. A 'hole' in our culture is appearing as a result, and music is one way of filling this hole. My exposure to "Indian culture and values" at a training programme organised by our *Zilla Parishad* at K.J. Somaiya Vidya Vihar, Mumbai, and my experiences of working in an evening school for child labourers before joining the *Zilla Parishad*, have also helped.

In my school, Shindevadi Prathamik Shala, though there were 200 children studying in the year 2000, attendance was irregular and on an average was also poor—around 70% or less. Today, not only is attendance extremely regular and good (close to 100%), but an additional 47 children who were out of school have been brought in. Children from neighbouring schools also like to come to Shindevadi school and observe. The experiment, which acquired the title of "*Geet Manch*", has now

expanded to the block and district levels through the "*Bal Vadya Vrund*" (described later) and *Bal Anand Mahotsavs*.

The singing activity in my school was extended to learning how to play musical instruments. This has reinforced the attractiveness of schooling, and has had a positive influence on children's attitude to learning. I feel that to develop regularity in children, one attractive medium should be the focus for the teacher—in my case it was music. There could be others.

The school is in a village at the meeting point of three districts, Solapur, Pune and Satara. Ninety percent of the 5000-strong population is engaged in some agricultural activity or other. The rest are labourers. Though I found that 'education' is clearly felt to be important by the community, economic realities at home and the responsibilities of looking after younger siblings create obstacles to regular attendance (and to enrolment in some cases). I studied this situation carefully in 2000-2001 and then started my music activity with a simple goal—incorporate fun, singing and dancing in teaching-learning activities. I decided music would be my medium, and I decided to use my own collection of musical instruments (some of which I had collected during my teacher's training course).

Apart from songs and group singing, the instruments which I used initially were the mouth organ and harmonium. The *tabla* (along with some folk dances) also attracted children. In my "*Geet Manch*" activity I have also used other musical instruments like the triple set, bongo, flute and synthesizer. These instruments have been bought with small amounts received from the people as gifts and donations.

The children of my school have played an important role in the *Bal Anand Mahotsav* organised at the district level in Solapur. I taught children Sanskrit rhymes (*subhashit*) and prayers. The fact that young children in Classes I to IV can sing and play music is the speciality of our school. They have a natural instinct for singing and

playing music, and I have just encouraged and guided them. The children learnt the “taal” and started playing instruments with ease. The outcome is that they now think that it is not difficult for them to organise a two-hour programme independently.

All the 247 children of the school can sing our national anthem harmoniously, despite the variation in their ages and training. This has been praised by the parents, who on the occasions of Independence and Republic Day, hear them. People have donated money to the school on these occasions. Now, all the children, their parents, and their siblings, come to our school to celebrate national festivals.

Everyday, one period was reserved for the children of Classes I to IV for sports. At first, the children were not interested in playing sports. I had to encourage them to play sports. I did this consistently for a year. Now, the children are habituated to playing sports. They play sports every day. However, during this activity, I noticed that some students were really good at certain sports. I started a team of such children and we participated in various competitions. Our team won a second prize in a competition. All these students won prizes for wrestling, badminton, and table tennis. Activities were carried out over a period of one year. The migration (January-April) and led to a significant improvement.

On Parental Motivation

As noted earlier, the attitude of the parents towards their children's education was one of indifference. I started to talk to them. I used a questionnaire to know how the parents' views on their children's education could be systematically recorded. Apart from the questionnaire, I heard complaints that parents do not value education. What I realised as I gathered the information was that there was no enjoyment in their lives. So I began with just this

My school's environment has changed completely. Children's attendance has regularized and they now like to come to school everyday. We have set aside 10.00 to 10.30 in the morning and 4.30 to 5.00 in the evening, every day, for training all the children in the school in singing, dancing and playing musical instruments. This training follows group training methods. The better children have been selected to form a group named “Sur Taal Bal Vadya Vrund”. About 20 children comprise this group, 10 singers and 10 musicians. In a short period of time, this group has become fairly well known in Solapur district. This group receives special training after 5 in the evening. The group has been appreciated by the Education Department.

Educating children belonging to families which migrate to obtain labour employment during particular seasons is an acute need. The government has made it a rule to start schools at sugarcane factories for the children of labourers who arrive at the factories every year. Most of the labourers belong to nomadic tribes. They have acquired skills in sugarcane cutting but generally are not in a position to pay any attention to their children's education. They usually migrate in search of a livelihood for about six months during the year. Hence, the effectiveness of such schools always remains in doubt. In 2000, in Dahanu, the Indus Sugarcane Sector factory was started. I was asked whether I could take charge and I readily agreed to take it up as a challenge.

We started a two-room school near the people's bus. The school looked no different from the huts. I wanted to do the work systematically and so I began with a survey of the children of school going age. I identified 63 children, out of whom I could enrol 61. But when I started

I have been working in the Zilla Prathmik Parishad Marathi Pathshala, Mirajgi, Akkalkot, Solapur, since 1993. I am associated with various organizations related to rural development, superstition removal and mobile libraries, and this has helped me in achieving my educational goals. I also write articles about education in newspapers and magazines. I have also written and presented street plays on various social problems. These activities give me a new angle to my work. My articles on the environment and value education have been especially appreciated, and an activity called "*janiv jagruti matru prabodhan*" has been taken up at various places in the state. My developmental activities have included organising free physical check up camps in villages, blood donation camps, *balmahotsav* involving 400 children and a '*hitgul sammelan*' for 2000 girls on the occasion of '*Savitribai Phule Jayanti*'. I have received some awards, including the "*Dr. Babasaheb Ambedkar Adhyapak Puskar*" by Maharashtra Dalit Sahitya Academy.

Educating children belonging to families which migrate to obtain labour employment during particular seasons is an acute need. The government has made it a rule to start schools at sugarcane factories for the children of labourers who arrive at the factories every year. Most of the labourers belong to nomadic tribes. They have acquired skills in sugarcane cutting, but generally are not in a position to pay any attention to their children's education. They usually migrate in search of a livelihood for about six months during the year. Hence, the effectiveness of such schools always remains in doubt. In 2000, in Dahitane, the Indira Sahakari Sugar factory was started. I was asked whether I could take charge, and I readily agreed to take it up as a challenge.

We started a two-room *kaccha* school near the people's huts. The school looked no different from the huts. I wanted to do the work systematically and so I began with a survey of the children of school going age. I identified 63 children, out of whom I could enrol 61. But when I started

to teach only 15 to 20 children used to turn up. I realised that the parents were not particularly concerned about education. This led to discussions with them. As they themselves had never gone to school, they were not interested at all. I decided to start various activities in the school, so that the children would take a direct interest, bypassing the constraints of parental non-involvement. I started a series of activities in the school like games and cultural programmes, and also in my teaching methods I focused on poems, catchy rhymes and jingles, and story telling. Dramatisation was particularly useful in teaching language and history. I also arranged for educational material for the children. I used the nearby regular schools' resources for teaching. But I also started organising entertainment programmes, dance programmes and lectures for parents, which are reported below.

Everyday, one period was allotted for all the children of Classes I to IV for sports. All the children had to play together. I did this considering the fact that these children are habituated to playing for most of the time together. However, during this activity, I observed that some students were really good at *kabaddi*. I made a team of such children and we participated in formal competitions. Our team won a second prize at the block level. Two students won prizes for wrestling as well. All these activities were carried out over a four-month period of migration (January-April) and led to a lot of excitement.

On Parental Motivation

As noted earlier, the attitude of the parents who spent half the year migrating was one of indifference. When I started to talk to them, I used a questionnaire for myself, so that the parents' views on their children's education could be systematically recorded. Apart from the commonly heard complaint that parents do not value education, what I realised as I gathered the information was that there was no enjoyment in their lives. So I began with just this

theme—enjoyment. I organised small plays based on the themes of their daily life. Some of these dealt with illiteracy, the disadvantages of being illiterate, the behaviour of the factory supervisors, indebtedness and dealing with those who lent money to the people. The plays for the parents had a magical effect. My goal was to make schooling an interesting experience for children and also to attract parents so that their apathy could be removed. The plays served to present the theme of enjoyment with some value, and possibly the idea that the same thing could happen in school was conveyed. I also focused on mothers, by organising Mothers' gatherings. I took the help of two local NGOs for this: *Shantai Mahila Mandal* and the Superstition Removal Committee. Their inputs were helpful. The focus on sports within the school and the results of the sports competitions, at the same time, created curiosity among the parents.

I assessed the level of the involvement of the parents, and the interest generated, by the gradual increase in participation in the meetings organised for them. The numbers attending over four meetings increased from 15 in the first, to 29 in the second and 42 in the third, and to 53 in the fourth meeting. The first mothers' gathering in January attracted only 13 women, but after 25 days, in a second gathering the attendance was 47. More importantly, from an average daily attendance in school of 23 children initially, the figure went up to 58.

What I have realised is that involving oneself in the development activities of severely disadvantaged communities is necessary for a teacher to talk about education. Apart from in-class activities, humorous thematic plays on daily life provide what parents lack—enjoyment. This will lead to enrolment and better attendance of their children.

Presentation of Lessons by Children

This is designed as a strategy for learning science in Class VII. Many students have the subject fairly child wants to do well in science but often the bright students carry a lot of burden. They are not able to cope with the demands of the subject. To make science easy to learn and interesting, I use the following strategies: scientific terminology is used on cards, prepared by the students (information); knowledge can be linked to events happening in nature. Students often find it difficult to establish links between what is happening around us and textbook content, and hence the difficulty in learning. The application of these principles in the form of presentation of the learning by groups of students.

First, the students go through the classroom session in which the lesson is taught focusing on the language. Then students are divided into groups of four each. A group is given one part of the lesson. The group members then have to think and discuss the learning from the lesson and plan how best to convert this into a presentation. Usually, roles are divided by the children—one might take the text, one might concentrate on figures and another on black board writing. However, one condition is that questions on the lesson have to be framed, asked and answered; these questions have to be other than those given in the textbook. While the presentation is going on, the members

Confidence

Teaching English in Class VII is a challenging task. Since English is generally the medium of instruction in higher education, getting opportunities to ask (apart from reading and listening) early on is a challenge. I use a variety of games, and ask the students to prepare lessons (generally done through group work) on universities of well-known people, famous people, popular people, prepare notes from the books, all in English, so that when the presentation is developed.

SULOCHANA SALGAR

40

Education has to result in the all round development of children. Simply reading, listening and explaining will not help in internalizing learning. Teachers need to create supplementary incidents or activities so that the lessons children learn stay with them for a long time. This kind of learning is what leads to confidence in children. With this kind of understanding, I have focused on a number of activities to explain the formal content of subjects.

Presentation of Lessons by Children

This is designed as an activity for learning science in Class VII. Many students fear the subject. Every child wants to do well in science but even the brighter students carry a fear that they may not be able to cope with the demands of the subject. To make science easy to learn and interesting, I use the following principles: scientific terminology is based on natural principles/laws; scientific information/knowledge can be linked to events happening in nature. Students often find it difficult to establish links between what is happening around us and textbook content, and hence the difficulty in learning. The application of these principles is in the form of presentation of the learning by groups of students.

First, the students go through the classroom session in which the lesson is taught focusing on the linkages. Then students are divided into groups of four; each group is given one unit of the lesson. The group members then have to think and discuss the learning from the lesson and plan how best to convert this into a presentation. Usually roles are divided by the children—one might take the lead, one child may concentrate on figures and another on black board writing. However, one condition is that questions on the lesson have to be framed, asked and answered; these questions have to be other than those given in the textbook. While the presentation is going on, the members

of the group have the option of contributing and correcting any mistake. If an experiment is involved, the group members have to collect all the needed material and build it into their presentation, without making mistakes. At the end of the presentations, there is a discussion on the various presentations, and the one which is judged the best (and to have had the least number of mistakes) is declared an ideal presentation.

Since all units of the lesson are presented, the teacher has a chance to put together the learning that should result from the lesson as a whole. Every group wants its lesson presentation to be the ideal. This helps in developing a competitive spirit, confidence, creativity, and most importantly, revision of the taught lesson in a better way as the children have to focus on the learning and also bring in additional material. A secondary benefit is the improvement in their ability to express themselves.

One more activity which is related to the above is called 'Introduction to well known scientists and their work'. This is organised once a year; the children are asked to prepare notes about scientists and their work using reference books. On February 28, that is National Science day, experiments and models prepared by the children are exhibited.

Teaching English in Classes V-VII to Developing Confidence

Since English is generally the medium of instruction in higher education, getting opportunities to speak (apart from reading and listening) early enough is important. I use a variety of games, and ask the children to dramatize lessons (generally done through group work on anniversaries of well known people), present the work of popular people, prepare notes from available reference books—all in English, so that some confidence is developed.

One of the methods I use effectively is 'Visits'. Confidence in English can be gained only by speaking in unfamiliar environments, outside the classroom. I give the children a few questions which they can use to start conversations with people who know English outside the school. The children are then required to keep a file which has records of the conversations and their own opinions. This helps in improving handwriting and spelling as well. This activity is combined with preparation of 'Handwritten booklets', which are compilations of poems, dialogues, jokes, information about animals, from outside the textbook. The activity forces the children to search for information, read it and then write it out. The booklets are displayed in a competition, so that the most interesting one can be selected.

Ancillary Activity: Links with Grandparents

Today's nuclear family system discourages learning from grandparents or the older generation in general. In Class VII there is a lesson titled 'Old people's homes'. The children used to ask many questions about what it means to be in such a home, why don't people stay in their own homes, and so on. Such questions used to disturb me, but inspired me to take the children on visits to an old people's home. The children entertain the inmates. This led to a "welcome your grandparents" programme in the school, which is organised once a year. Grandparents are invited to school, thus promoting interaction between two widely spaced generations.

I was satisfied when the folk songs reached mothers. Once, after our performance, two women came with a request to admit their daughters to school. They requested me to take care of their daughters and one woman could not control her tears. I let request must have come from the depth of her heart. She said that she had had to drop out of school, nobody acknowledged her worth even though she works day and night but she wants her daughter to

I work in a female prison. The major problem is that of bringing children to school and keeping them there. The community is hostile to the neighbouring state during the monsoon season (during sugar cane). Also, for a short time after the school reopens, the children go for labour work. After all this, even when the people are present in their seats (patients), they ignore the school. Alcoholism is another problem. It was difficult for me to bring children to school. The parents were totally uninterested. They said that this teacher was a hypocrite who has come to take the kids to school should not come to their own homes so distant from the school. They also used to say, "The boys don't want to go." I used to talk about the education. They would ask me to go away. I have disliked such results.

I was very bothered by this problem and thought that a different approach was needed. My father writes songs related to children. One day when I saw my father writing something in a book, I tried to write songs about the importance of education. I could write two songs and described love towards the child and his talk about school. The other one was about the impact of education on the

NILESH P. SHELKE

I am a teacher in a rural part of the country. The pathetic condition of education in rural India is a matter of great concern to teachers like us who have to impart education in schools located on distant farm lands, settlements and on unfriendly terrain. People living in small settlements outside the mainstream villages usually get left out. Even today one will find small kids of the sugar cutter labourers happily helping their parents in their labour as the doors of education are still too far away. Some incidents shatter you internally. One example: A labourer and his son watch a government-sponsored message about education on television—a boy running towards the school. The father asks the son whether he would like to go to school. Both laugh and that's it. Nothing is gained. The boy goes to play. The teacher observes the whole incident and is disturbed deeply.

I work in a famine-prone area. The major problem is that of bringing children to school and keeping them there. The community migrates to the neighbouring state during Diwali in search of labour (cutting sugar cane). Also, for a short time after the school reopens, the children go for labour work. After all this, even when the people are present in their *taada* (habitats), they ignore the school. Alcoholism is another problem. It was difficult for me to bring children to school. The parents were totally uninterested. They said that this teacher on a bicycle who has come to take the kids to school should not come to these far out locations, so distant from the school. They also used to say, "The boys don't want to go." I used to talk about girls' education. They would ask me to go away. I have digested such insults.

I was very bothered by this problem and thought that a different approach was needed. My father writes songs related to children. One day when I saw my father writing something an idea clicked. I tried to write songs about the importance of education. I could write two songs: one described love towards the child and his talk about school, the other one was about the impact of education on the

social life of the family. These songs written in Marathi were translated into the *Banjara* dialect; this is a mixture of Marwari and Hindi and slightly difficult. I had many difficulties in translating them and putting them into proper rhythm. After some days of translation I started singing songs in Marathi to the villagers' great amusement. I started moving from *taada* to *taada* and tried encouraging people. Initially I thought of doing it myself but then I thought of changing the strategy by involving the children of my class who used to come to school, as my ambassadors. I started training them in enacting the songs. Gradually the children started reciting them again and again. I was happy to hear these songs from them and so I was more enthusiastic. Some days later, I took two kids who had learnt those songs by heart on my bicycle. I sat aside and let my students recite the folk songs to the people. The people over there were asked to sit under a tree. The boys from their group started singing songs in the *Banjara* language. The people were happy to some extent. After the songs were over only a few people remained. They did not discuss their sons'/daughters' education. Next day again I went with the boys on my bicycle. They sang the songs and at the end four or five guardians came to me and requested me to enrol their sons in school. Gradually the other nomadic families who heard these songs started believing that their sons and daughters would also benefit. More people started coming forward to enrol their children. I used to go there in the morning with my register and write down the names of the children in their parents' presence.

I was satisfied when the folk songs inspired mothers. Once, after our performance, two women came with a request to admit their daughters to school. They requested me to take care of their daughters and one woman could not control her tears. Her request must have come from the depth of her heart. She said that she had had to drop out of school, nobody acknowledges her worth even though she works day and night, but she wants her daughter to

live with dignity and so wished to enrol her in school, whatever the odds.

Having realised that the sugar cane cutters had understood the importance of education through songs in their dialect, I narrated the whole situation to my colleagues. They were very encouraging. This breakthrough made it easier for me to move to many more habitats in far flung areas, with children singing songs about the importance, value and utility of education, in their own dialect. The atmosphere changed. The people started cooperating. The same people who had insulted me and told me to go back started treating me well. I went from habitat to habitat, adding songs about the education of the girl child. The attendance of girls started to increase. These same girls would go home, sit with their mothers in

their makeshift huts near the stove made from three stones, and sing these songs. Seeing this changed situation my joy knew no bounds, I was satisfied that my efforts in the scorching heat with the children on my bicycle for kilometre after kilometre had contributed to strengthening the foundation of education among the nomadic communities. The attendance increased and their love, respect and affection towards me also increased. The illiterate kids started to learn to write and read. I was really happy. The other teachers appreciated my efforts and volunteered to take part in the experiment. This success prompted me to continue my efforts.

The experiment described above has proved to be successful and satisfying. Small children, happy children, give the clearest messages.

At present I am working as a teacher in the primary school of Chinchati village of Raver Block in Jalgaon, Maharashtra. On the basis of 15 years of experience in tribal areas (out of about 30 years of service), I have realised that comprehensive efforts are needed to achieve results in tribal areas. I achieved my enrolment and retention aims by combining schooling with social activities, like tree plantation, medical check ups, "geet manch", forming youth associations and *Mahila Mandals*, school cleanliness, village cleanliness and gardening.

To give an example of an outcome: Enrolling children, who would have otherwise left the village to go for labour work, in an Ashram School. Varyoda village of Chalisgaon block has people belonging to the (Nandivaun) Tirmani community, a nomadic tribe. In the name of the school there was one privately owned building. None of the teachers belonged to the village, and they used to commute from nearby villages. Attendance was very poor. I first contacted the people, formed a *Panchayat Samiti*, and mobilised some resources for getting pencils, slates and cloth. The children started to come to school. Then came Diwali time. During this time people migrated to sugarcane factories/farms in other districts and along with them went about 75% of the village's children. This was a bad experience and I explored the alternative of admitting children to a nearby ashram school till the parents returned. From the following year I made arrangements for the younger children of my school to stay with the older children at the Ashram school. I arranged with the parents to employ an elderly lady to cook for the children—stay would be at the Ashram school. I worked with the *Panchayat Samiti* to obtain the benefits that government provides for tribes. There was also a problem of alcoholism in the village and registering police cases was very common. My mediation in these matters also helped. All this led to better relationships with the people and to better attendance. The older children at the Ashram school were also positively influenced and they

helped me in my village development activities. I also decided to tackle belief in black magic, since this was another block to education, and so invited the *Andhshradhha Nirmulan Samiti* to my village. The overall development focus, and genuine concern for the daily lives of the people, ultimately resulted in good schooling and educational performance. In particular, one parent, Sri Rambhau Nirmani, and his son, played a critical role in helping me retain children in school.

In my own village (Janori) of Tadvi Bhil tribals, I took the initiative of starting a public bus service to the nearest village which had a high school. This enabled girls to study further. These girls, in turn, over the years, have focused attention on the issue of female illiteracy. The adult education programme then was able to make an impact. In yet another village where I worked (Lohare), my development focus led me to help *anganwadi* workers to study and appear for the Class VII examination as external candidates. This model was extended to older children as well. Many of them studied up to Class XII and managed to get some job or other. Some of those who appeared as external candidates in Class VII are now police patils, drivers, and *anganwadi* workers. In this work, the help of one of my colleagues and a few educated people in the village was crucial.

Improving Attendance through Cleanliness: Pathrana, Yawan

Cleanliness and attendance were both problems here in 1974. My overall developmental focus enabled me to get closer to the community. Door to door visits and persuasion helped achieve an average of 95% attendance. Usually, 31 to 32, out of a total of 33 children, used to be present. Regular attendance is a neglected issue in educational management, and there is no way of improving performance if attendance is irregular. In particular, my work influenced the *mukhi*, Laxman Patil, who then helped

me in my ventures. The advantage of my staying in the village was that parents hesitated to take children along with them for labour, ignoring my presence. The environment that was created in the village as a result, helped other teachers who joined after I left.

In Chinchati, Block Raver, the school building was in pathetic shape. I decided to make a garden like the ones generally seen in good schools. People used to dump waste in the area surrounding the school. I started a village

cleanliness mission. All the streets were cleaned. The school building was painted and repaired. Then we planted flower shrubs. We started cleaning the school everyday. A broom was kept in each classroom and the children had to clean the rooms everyday. This activity became a point of discussion and the flower plants idea was replicated in many homes.

In brief, the developmental focus that I adopted helped me achieve my educational goals.

In 1974 I went to Anand, a village 17 kms from Bikaner. Here I had a colleague who used to be very kind to children. I also noticed that the number of girls in the school was very low. I realised that the parents were reluctant to send their daughters due to the behaviour of my colleague. It was a great challenge to change their mind. I wanted to make up for the behaviour of this teacher. I took the students out of the classroom and taught them under a tree without a blackboard, but using a lot of ink and fun. With this approach, using very little resources, I started my work simultaneously. I started meeting the villagers frequently. Over time, the parents accepted me and the result was an increase in the number of girls who went to school. I still enjoy very good relations

Girls' Enrolment

TIME

The students who drop out due to lack of motivation have been my greatest concern. I try to teach with fun. I am fond of making

I joined as a teacher in Primary School, Ghonsala, Madhya Pradesh, in 1971. I was inspired by my father, who was a teacher and a freedom fighter. However my basic interest has always been in the field of arts, and I have completed my post-graduation in Fine Arts. I was very fond of acting also and have a Diploma in Drama. I have worked with some famous directors like K. Narayan, Shanta Gandhi, Prabhatkumar Bhattacharya, Banshi Kaul, V. Karanth, Vijaya Mehta, and Dharendra Parmar. I also worked in a telefilm "*Jag Hansa Khood Roye*" and have participated in programmes on Akashvani and Doordarshan. All this experience has been useful in my educational practice, especially while designing puppets for particular lessons, stories and poems. Mimicry is another passion. A turning point in my life was a stage performance by Janab Mohammad Khan, a well known artiste. The audience loved him, and his performance left a permanent mark on me. Making someone smile is the best service one can render. I made this my motive in life. I became a teacher, and even if I have not done anything else, I have made my students happy by using my talent.

Girls' Enrolment

In 1974 I went to Ambolia, a village 17 kms from Ujjain. Here I had a colleague who used to be very unkind to children. I also noticed that the number of girls in the school was very low. I realised that the parents were reluctant to send their daughters due to the behaviour of my colleague. It was a great challenge to regain their trust. I wanted to make up for the behaviour of this teacher. I took the students out of the classroom, and taught them under a tree, without a blackboard, but using a lot of mimicry and fun. With this approach, using very little resources, I started my work. Simultaneously, I started meeting the villagers frequently. Over time, the parents accepted me, and the result was an increase in the number of girls who went to school. I still enjoy very good relations

with the students and the villagers of Ambolia. In 1983, I was transferred to another village, and in 1984 I was sent to Mansa Darwaja, where I continue to work.

Restoring Historical Glory

When I came to this school I got involved with a local religious *mandal*, the Harsiddhi Bhakt Mandal, which was associated with the activities of the temple of goddess Harsiddhi. I realised that though Ujjain is historically well known, the local people had little knowledge about the history of the town. Mythology talks about Lord Krishna and Sudama studying here at the Ashram of Guru Rishi Sandipani; the place is also known for King Vikramaditya. I wanted to involve students in their own local history. I collected donations of Rs.50,000, and identified sketches and drawings of legendary characters from old books. I converted the drawings into paintings and placed them in an Art Gallery, which was open to all. This was the first collection of its kind. People and students were curious to know more about the history and heritage of their own area. I also noticed that in Ujjain information about historical places was displayed on old cloth. Some of these information sheets are very old, but they do not last. I thought of carving the same information on stone slabs, and started with the Harsiddhi temple. This temple now has information on the place's history in three languages, Hindi, Gujarati and English. All these activities helped me get resources for my school as well. I motivated the Lions' Club and the Mahakal Club to contribute to the betterment of the school.

TLMs

The students who drop out due to lack of interest and motivation have been my greatest concern. I help them rejoin school, but to maintain the interest of those in school, I try to teach with fun. I am fond of making new things out

of waste material. I have created teaching aids of various kinds. I associate our conventional games with studying. In games like ludo and snakes and ladders, I place figures, alphabets and words, so that children can learn while playing. I often use dice as an important teaching aid. Figures, words or alphabets are written on all the sides of the dice. I have found a very easy way of making dice. I cut two pieces out of an empty box (toothpaste carton which has a square cross section, for instance), open them up and fixed the two halves into each other. One can use larger boxes as well. Sometimes in games like ludo and snakes and ladders, I make children use cards instead of dices. These cards have numbers or letters written on them. Similarly there are two boards for any game, one with figures and the other with vowels and consonant signs. When the children move their cards, they have to speak out the combination of what is written on the card and on the board. This way, I teach language, and mathematical concepts including addition, subtraction, division and multiplication.

Co-curricular Activities and Joyful Methods

A teacher should also try to develop the hidden abilities of his students. Often I try to give the cultural activities that children undertake an educational shape. Often

mehandi and *rangoli* competitions are arranged and students participate in such competitions with amazing enthusiasm. These are opportunities to teach about colours, flowers, trees, nature, shapes and many other things. One practical limitation is that, in government schools, there is always a shortage of space. So we try to take the help of associations in the town; for instance, during *Navaratri* (religious festival celebrated for nine days mainly through folk dance), we use the premises of some of the associations that have some sympathy for the school.

My classroom is a stage, with the poems and the stories from the syllabus as the script. I involve all the students in these performances. Teaching and learning is a performance. I equip my students with skills in drama and puppetry, painting and sketching. I have come to know the nature of each child in my school. Then, very importantly for me, I use a child's painting or sketch as a teaching aid. I personally believe that if children are asked to draw anything they like, it gives us an idea of their likes and dislikes. The teacher can then work on these. This method of mine which identifies a student's mental make up first, and then builds a teaching process around it, has been effective. Children remember such experiences. I am indeed thankful to God that he has given me the ability to make my students laugh with open hearts.

I lost my parents when I was just one year old, but my grandfather put me through schooling. I had good teachers, and participated actively in the cultural activities of the school. With the motivation provided by my teachers, I managed to study while working as a gate-keeper in a theatre. I also learnt how to operate a movie projector. The movies of those days strengthened my moral and ethical values. I passed my higher secondary examination in 1961 and got an opportunity to work as a teacher for four months. I enjoyed this stint, and my teachers once again guided me in my teachers' training course. I became a teacher soon after and served in my first school for nine years. I was then transferred to a village in Dhar block. I worked hard and built a very good relationship with the people. I also completed my B.A. In 1975 I joined the Chilur school. This school gave me an extended period of uninterrupted time for my activities. Initially my time was spent in struggling for the basic rights of children and fighting problems like non-enrolment, drop out and poor infrastructure. Nowadays, these problems do not exist in my school. I always believed in showing performance first and then asking for the rights of children. The first time I achieved 100 percent results in the board exams of Class V was a happy and moving experience for the village. That one achievement (recognition in an outside exam) woke up the village and then there was no looking back.

Teachings Methods and the Use of TLM

In my teaching I believe in maintaining the role of a friend and guide for my students. I create an atmosphere in which the students can express themselves without any hesitation. This creates a sense of confidence and when they begin to express themselves freely, it is quite easy to shape their minds in whatever way you like. It is this positive impact that develops citizens.

In order to make learning interesting, I usually translate the lessons, poems and other topics into play or drama form. I train my students in drama and encourage them to act out the lessons. Students watch the performances carefully and are able to verbalize what they have understood (in contrast to 'mugging up'). Sometimes I invite the senior villagers to tell stories to the students. The lessons and topics that involve drama, poems, stories are classified on the basis of the kinds of teaching aids that they would require for reinforcing learning. Some of the teaching aids I have developed are:

- ② Moving model of solar and lunar eclipses.
- ② Moving model of the planets.
- ② Moving model of the seasons.
- ② Model of the breathing system. The model demonstrates how lungs expand and contract in the process of breathing
- ② Model of the heart. This model shows how the heart functions, and how the pumping of blood increases when a person runs.
- ② A 'math strip' for teaching numbers, models of ascending and descending figures, weights from 50 grams to 20 kg, and other such articles.

Along with these, I have used other materials like clay vessels, paintings, artificial flowers. Such articles are prepared by the students and are kept on display. This also motivates them.

Multi-grade teaching is a harsh reality, but I have always relied on my students. I appoint monitors, committee members and unit leaders to help me in my work. There are certain functions of the monitor:

- ② *Samuh Vibhajan* (forming groups)
- ② Teaching through units
- ② Marking the presence
- ② Work division among student committees
- ② Arranging teaching aids
- ② Calendar maintenance

- Following the teacher's instructions and assisting him in the academic work.

Moreover, we have formed 10 committees of students to take care of the school and activities like sports. Our way of working out the functions of monitors in multi-grade teaching has been appreciated, and Doordarshan has made a documentary on the multi-grade teaching practised in Chilur.

When it comes to evaluating the activities of the school, there can be no better judges than the students. I have taught my students to maintain a diary called 'My Own Diary'. They are allowed to write whatever they feel about the school, the teachers, the education that is imparted, the activities going on in the school and any other matter. They write what they like and what they do not, the games that they enjoy. They also write about what they expect from the teachers, their parents, friends and others, and they also mention the subjects and topics that they like. These diaries have helped me provide individual treatment to the students and also to identify their hidden abilities. Their ideas about what they would like to become in the life, their goals and ambitions, the ways in which they would like to spend their time—sitting in the classroom or in the ground or under a tree, have given me a number of insights. The diary exercise is limited to the students of Classes IV and V.

I also implemented the idea of learning corners which we were exposed to through in-service training. They were

very interesting. There is a corner where students gather, write poems and stories, jokes and songs and these activities are done under the guidance of the Cultural Committee. These collections are exhibited periodically. The educational games are inspired to increase student participation in educational activities. There is a corner for language and literature. It contains a rich collection of words, sentences, proverbs and sayings; there are also antonyms and synonyms, essays, storybooks etc. It is accompanied by many models and charts made of clay and paper such as the models of fruits and vegetables, charts of the cycle of seasons, the cycle of rain, solar and lunar eclipse, nine planets etc. Similarly, in the mathematics corner there are models and aids to explain the concepts of litre, kilogram, meter, number cards, coins etc. Models of the breathing system, the circulation system, the heart, the human body etc. are kept in the Science corner. The art corner consists of pictures and photographs of different cultures and their festivals, attire, traditions etc. There is one more corner called 'My Own Corner' where children sit and make charts, clay models, and handbooks. In short, these corners are made in such a way that it appears as if there is a separate school for a specific subject. There is also *Bal Panchayat* in the school, which meets every Saturday to listen to and solve the problems of the students. This meeting is attended by all the students and the teachers; the parents are also present in good number.

I am working as HM of Sindpan, a small village of Mandsaur district, in the Malva belt of Madhya Pradesh. The population of the village is 1327 (169 families). Most of them belong to the backward classes and Scheduled Castes. There are a few households of the Rajput and tribal communities. The village is divided into two parts by a railway track. There are two buildings. The old one has two rooms, a small store room and a *verandah*. The second, built in 1992, has three rooms and one *pakka verandah*. The school has a playground and a fence. The school had started in 1950. For years the school worked in a temple with a teacher called Pt. Shankarlal Sharma. I took over in 1995 and for four years worked in the primary section. Prior to 1995 I had worked in the upper primary and secondary sections elsewhere. My father and both my grandfathers had also worked as teachers, and so I was comfortable teaching different sections.

I first came to the village during the summer vacation, with my writer friend, Mr. Rajmal Dangi. We cooked ourselves. I spent time with the *Sarpanch* of the village. I was told that the people were addicted to alcohol and were very aggressive towards teachers. No teacher wanted to talk to them. Even when there was a small disagreement, the villagers fought with teachers and got them transferred. Theft was another problem. There have been nine recorded instances of theft. The teachers were often asked by the officials to do some other work for a few days, but they would not be relieved for a month. Students had to pay a very small amount as a fee; many times teachers had to pay from their own pocket. There was no tradition of giving a receipt for the fees taken, since there was no receipt book. The villagers thought that the teachers were corrupt.

Though there were two buildings, the infrastructure was in very poor shape. There was no water supply, and after each hour, students had to be given a water break. Many used to run away during such breaks. The new building was so poorly constructed that it leaked very badly. During the monsoon, very often there was no place to conduct

classes and holidays used to be declared. The store room was a dump. One teacher had planted some trees. Grass grew well on the playground. The villagers' took these resources as their property and used to leave their animals in the school compound. The school also did not have a tradition of cultural activities, picnics or extra curricular activities. I anticipated opposition and resistance. So I tried to take my colleagues into my confidence and I succeeded. A few ideas were opposed, but I did not worry. Those who opposed did not know me or my capabilities well. A few antisocial alcoholics harassed me. I tolerated them to some extent, but when it became unbearable, I reported them to the police and got them punished.

Solution of the Drinking Water Problem

I did not find it proper to give a recess for water. In some parts of the village, bore-wells had been tried, but they had been unsuccessful. The school used to have an old well, which had now filled up with stones and mud. I knew there would be water at that location and so decided to revive the well. With a grant of Rs.250 from the Red Cross, and the help of four former students, the well was revived and in the monsoon, the first filling up happened. I was the first to drink the well water. I got a rope and a bucket for the students. For many days teachers did not drink this water, they used to send students to bring water from a hand pump. Later on, we added disinfectants to the water and everybody began to drink it. Then, with the help of the *panchayat*, I recovered the school's hand pump which the villagers had taken away. I installed it at the well. I covered the well with a roof. My water effort was crucial in making the villagers take notice of me.

Increase in the Income of the School

The solution of the water problem intrigued the VEC. I decided to take advantage of this interest to increase the school income.

Hike in the fee

The fee per annum was Rs.5 in the primary section and Rs.15 in the middle level. No date or month was fixed for fee collection. Many students left their studies around January and they did not pay. I requested the parents to pay Rs.25 at the primary level and for the middle level Rs.72. These fees would have to be paid at the time of admission, but definitely before 15th August. The first year we had some problems, but our persistence made fee contribution a regular feature.

Arrangement of receipt

In order to remove the doubts about the proper accounting of the fee income, I arranged for receipt books for the school fees and another book for the VEC. This helped us in collecting small donations and other charges regularly.

Charges on every facility

All the facilities in the school were free of cost. The villagers used to ask us to remove a student's name from the registers, but did not collect the certificate; they often lost the progress card and then came to collect duplicates. I started to charge small sums for such facilities. With the money, we got admission forms printed so that all the required information could be collected in one go. The messages given were: "Deposit one rupee if you have lost the card of the examination. If you want to leave the school to join at your uncle's home, take the school progress card and pay Rs.30. If you do not like your uncle's home and want to come back, then pay the fee again." Because of this, the villagers got into the habit of taking care of school-related documents. Leaving the school was now considered to be a matter that one should consider carefully. And at least something called "the school's money" was gathered.

From the School Motto to the Progress Card

When I took charge of the school, I found parents giving pet names or fictitious names at random to their children—names like *Gopya*, *Babu*, *Kari*, *Ajodiya*. Birth dates were a matter of deep speculation and the teachers had to decide on what date the child could have been born. I decided to create an identity for the school and prepared systematic documents and got them printed.

School motto and letter pad

I wrote a sentence in Sanskrit that meant "we will never alter from our path." I kept this motto on all the documents so that slowly people came to know what it meant. Sindpan had its own identity. I also got a letter pad for the correspondence.

Monthly evaluation card

We got evaluation cards printed so that the parents could be informed about the results of monthly examinations and the presence of their children. This was important for monitoring attendance.

Result card (mark sheet/progress report)

We got cards of various colours for different classes. These cards were used for the annual and 6-monthly results.

Admission form

Previously there had been no tradition of admission forms. I got admission forms printed and from the registration of names to the scholar register, all responsibilities were distributed among the teachers.

Certification

I started a tradition of giving certificates to the creative students in the school. These certificates are printed in two colours.

Facilities for Students

Facilities for students often take second place to concerns about enrolment. This is one reason for migration to private schools. I decided to make sitting on the floor more comfortable by buying some cloth rugs. We then collected empty bags of fertilizers from the village and children made sheets out of them. We also requested some shopkeepers of the town to donate mats. Blackboards were a problem. I got blackboards of cement made in all the classes. In the winter, students used to sit outside the building, but here again we had no blackboards. I got three boards made on the wall of the school and the problem was solved. As the new cement blackboards were made, the old wooden boards were of no use. We thought of alternative uses for these boards:

Employees' Record Board: We started to display student attendance and details about the teachers on this board.

Teaching Aid: One board was painted on both sides, and with numbers and the alphabet painted on the two sides, was used as a teaching aid.

List of Good Students: Many students of the primary section had been selected for the district's Navodaya Vidyalaya, a residential school which spots and encourages rural talented children. We put up their names to encourage other students to work hard.

Examination pattern: Swadhyayi Vidyalayas

Efforts made to improve the achievement level of students included giving them writing practice, copy writing, in addition to the regular teaching. We started monthly and quarterly examinations in order to evaluate these efforts. **Monthly examinations:** There are no monthly tests in government schools. I discussed the idea with my colleagues with the idea of monitoring the progress of the children. These exams were started in 1995. They are held towards the end of the month, and parents are informed about the results by a special card. Here is the schedule followed.

No	Month	Kind	Subject Matter
1	July	Written	Testing of the things taught in the previous standard.
2	August	Oral	Reading skills, style of answering, pronunciation, memory, ability to express oneself.
3	September	Written	Quarterly.
4	October	Activity based	The child is expected to answer questions on the board on the basis of charts, principles, experiments, sketches and formulas.
5	November	By copying	The students are asked to solve questions by referring to their books. New questions are made for the examinations every year.
6	December	Written	Usual test.
7	January	Oral	How the students have absorbed what was taught in the last six months.
8	February	Written	Pre-final paper. Forecast of the final results is made.

Printed answer sheets

Previously simple plain paper was used for monthly examinations. I found that students were not quite enthusiastic because of this. We got formal answer sheets

printed and supplied them on payment. Students started showing interest. Prices are printed on these sheets and then they are given to students. However, it is not compulsory for students to buy the printed answer sheets.

Prizes in quarterly and biannual examination

In order to encourage hard work, we began the tradition of giving cash prize of Rs.50 to the students who pass in the quarterly and biannual examinations. This prize is given to those students who are involved in the annual tour of the school. This amount is given by the HM.

Prizes for Secondary and other higher classes

The student who stands first in the Middle Board is given a Rs.100 prize by the HM. Similarly, every student who passes in the board examinations of Classes X and XII is given a cash prize of Rs.125 by a senior teacher, Sri Nandlal Rathod, on Independence Day.

Combining Class V with the Middle School

The students easily reached Class V, as promotion in the early years is not an issue. When they are prepared for the examination, they are often at Class III or IV levels. I found

that if these students are made to sit with the students of the middle school, they try to follow the senior students. I gained good results by practicing this experiment from 1995 to 1999.

Auction of the Grass, Protection of the Plants and School Improvements

Within the school premises very good grass grew and some villagers believed that they had a right over it. Talking to them did not work. I discussed the problem with the *Sarpanch* and declared an auction of the grass on August 15. This has become an annual tradition. Given the difficult environment, I concentrated on the plants that grew naturally without any care. Today, the school has babool, neem, chirol and khajur. We bought clay pots from the money that we got from the grass auctions. Beautiful plants were nurtured and the school was decorated. During the summer, when there is a vacation, we distribute these pots to the students. They take care of these plants and bring them back when the school restarts. This way our young plants are kept going for the whole year. In the school's nursery, we have neem, banyan and peepal in the pots. Village people are free to take these pots from the school.

Very often HMs do not use the school money for fear of adverse audit remarks and the consequent troubles with their pension. I believe that money should be collected from the students only for definite reasons and that the same money should be spent within one term. I have applied this policy for school improvement like whitewashing and repairs. The road to the school was in bad condition. I organised a ten day N.S.S. camp in my school in 1996. The 45 workers of the N.S.S. spread ten trolleys of soil in the playground, built the road and whitewashed the building. Another ten day camp of 50 N.S.S. girls in 1997 took care of the remaining repair problems. The villagers then reconstructed the poorly constructed ceiling with the money they mobilised. I got new urinals and toilets with doors constructed in 1999. I started Gandhi Dharma to take care of the maintenance. I myself clean the toilets and urinals. The students of Class VIII have now joined me; my first disciple was the grandson of the then *Sarpanch*, who had helped me.

Some of the other activities which have been of particular usefulness are a 'monsoon swing' for the girls—most of

whom are labourers and do not have time to play at home, a special week (November 14-19) for making clay toys with clay brought from outside, a *Bal Sabha* every Saturday, during which the students are divided into two groups that compete with each other in academic competitions, celebrations of national festivals, and a competition on October 2, in which 100 questions on the life of Mahatma Gandhi are asked.

Note: Mr. Kailash Pandey has also been involved in an interesting museum initiative that derives from his interest in archaeology and history. Mr. Pandey had started his doctoral studies in Indian history, but had to discontinue. His guide made him promise that he would continue to be involved in history. His involvement in the 'Samrat Yashodharman Sangrahalay' and 'Daspur Prachya Shodh Sansthan' is described in his own words. "When I joined as a teacher in 1982, I found that the District Collector shared my interests. We set up an open air museum of the broken statues that we could collect from the area. After school hours I used to fulfill my duties as In-charge, Open Air Museum, to which position I had been appointed by the Collector. One of my former students took over the job in 1988. I used to take children of my school to visit this place and often children recounted instances when similar statues had been found when digging a well. I encouraged them to collect information systematically. Gradually with their help, other people who came to know of the idea contributed coins, inscriptions, sculptures and weapons (some of them dating back to the early 16th Century). We reached many corners of the district. In 1997, the Government built, at a cost of Rs.45 lakhs, a museum in Mandsaur called the Samrat Yashodharman Sangrahalay. I am proud to say that more than 90 % of the museum's collection is an outcome of our efforts. I also started the *Daspur Prachya Shodh Sansthan* with some award money I received. It has a library and a study room. So far I have motivated many students to do their post-graduation in history and archaeology. I also informally guide a few doctoral students. Our facilities have also been used by some foreign students of Indian history and archaeology."

I was a young child when I lost my father. It was my mother who gave me the courage to fight the troubles of life and inspired me to do something extraordinary. I was also helped and guided by my teachers during my early years in school. These two emotional motivations led me to become a teacher. I started my career as a school teacher in 1955 at Bakhatgadh. Due to the higher qualifications which I acquired later on (BCom 1961, BEd 1965, MA 1971), I got opportunities to serve in inspectorial posts. I served as ADEI for one year but that did not give me satisfaction. I met the then Education Minister and requested him to revert me to teaching. He was surprised but agreed. As a teacher my concern had been especially for the children of the so-called lower castes. I tried to create an atmosphere that would help them gain self-confidence. I had realised that these children needed a 'friend' in the teacher who could help them gain self-respect, not an instructor. Many privileged people, other teachers and government officials despised my sympathy for the poor and disadvantaged. But the children of oppressed, exploited and disadvantaged families have remained my focal point throughout.

While doing this, one has to see that the child does not feel that he is being placed under an obligation. The moment he feels a sense of obligation, the doors of his heart will shut on you forever. He shares his feelings only when you share his joys and sorrows as a friend. When you unite with the child's family in the same way, you automatically find solutions to all the problems. If a teacher has this devotion, there is no need to make any extra effort for enrolment and retention, nor will any shortage of resources exist.

I have noticed that the parents of the oppressed castes, about 20% of the population wherever I have worked, do want to educate their children. But their socio-economic limitations do not allow them to do so. When a student said that the HM was his friend, I felt that I had been repaid in full. I have always believed that it is not the child who is examined in school, he never passes or fails. It is the teacher who is examined, and it is he who fails or

succeeds. This has motivated me to put in lot of effort into the academic achievement of children wherever I have worked.

Improving Academic Achievement in Poor Areas

This has been my major area of work, but my years in Dhar from 1977 to 1980 as HM were my best years. Previous results at this town school had been quite discouraging: pass percentage had never crossed 10 in 22 years. Those who passed did so with difficulty. All the students belonged to the so-called 'lower' classes of society and almost all of them worked to earn their bread. If they attended school in the morning shift, they worked in the evening, and if they attended the evening shift, they worked in the morning. Some worked as shoe polishers. I provided them ethical support, not financial or any other. Without going by the routines of a government school job I became part of their lives and saw to it that the children learned the required things, regardless of routine school timings. As a result all the students passed, most with a first or second class, and only two students got third class.

The principle of maintaining warm and friendly relations worked with teachers also. My relationship with colleagues has been my strength. There was a lady teacher in my school. Her father-in-law was a well-known politician. Once he asked this lady quite casually, "Your HM is a leader of the teachers' federation. He must be like other teachers. What kind of man is he?" The opinion that the lady gave is an award to me. She said, "Father, previously I used to go to school and return to my husband's house. Now I go to my father's house and return to my husband's house." That gentleman discussed this conversation with the then Education Secretary. The District Education Officer told me this story. I realised that day that relationships are the only reason for someone's success. Whether it is a student or a teacher, when you learn to share both joys and sorrows like a family member or true friend, no problems can bother you for long.

Games/Songs for Learning

I read somewhere, "The best teacher is the one who knows only as much as his students know." This appealed to me and I made it my *Gurumantra* (principle). I leave all my degrees and qualifications behind when I enter the classroom. I also pass through the difficulties that a child has while learning something new. It was thus that I created some games to make the learning process interesting. There is a popular game called *langdi* (hopscotch); I make the children play it to reinforce the learning of tables. Squares (which are drawn on floor and the child has to skip through the squares according to some rules) were made in the classroom and the tables were written in those squares in irregular manner. I allowed the children to play *langdi* according to the table. Here the modification is that the player is supposed to skip in a square that contains the next step of the table. Sometimes I used to play along with the students; sometimes I stepped into a wrong square deliberately. Then all children cried out joyfully, "Sir you are out." Then some child would come up and show the right way and make the correct table. If a teacher always does the table correctly, the child feels that the teacher can do and he cannot. Such efforts always fill children with joy and enthusiasm.

Along with games, we also wrote a number of songs that taught various things. Even in these songs I followed the same principles. They were spontaneously made jingles rather than songs. Some situation arises and you make a line, and then you go on making a rhyme. There is no need to look for logic and reason. Children like it and it also teaches some topic, that is enough. What could be the reason that a child loves his grand parent more than his parent? We need to understand that the textbook is a means and not the goal. If there is no other method to teach some topic, the textbook can suggest one. But considering the textbook as a goal may prove fatal. If the author of the textbook is from another area, his concepts may not match with those of rural children. I tried to explain the same thing to my colleagues also. We used to meet once a week. I never agreed if somebody said that he taught five lessons in this week. No matter what method one follows, if the lessons are meant to teach mathematical figures or names of fruits and vegetables, one should see whether the students have indeed learned them or not. This should be the only criterion to judge a teacher's performance.

Gardens to Nurture Creativity

I also felt that play way methods like games/songs alone are not enough for quality education. If we want to achieve the total development of our students, we must provide them with a congenial atmosphere so that their creativity may bloom. Drawing may be a way, but it is not possible to gather the required equipment for that in such rural areas. As a solution I decided to develop a garden for the children and I implemented this idea successfully in Khachroda (1966-1971). At least for one period, I allowed the students to play in the garden. Teaching materials were developed in the garden. We made maps on the land and mountains, oceans and other important places were displayed. Students absorbed these things very easily. After this wherever I served, the first thing that I did was to make a beautiful garden. I achieved the best result in Nagada (1971-1976, 1980-1997). All this was done without any kind of aid from the government. Many visitors have visited the school and have praised the garden.

Experiences with Shikshak Samkhya

Nagada vidyalaya became well known during the Shikshak Samakhya, a UNICEF sponsored project that started in 1993. Our idea of low cost and no cost teaching aids was appreciated by this project, and some ideas were taken for adoption elsewhere. I believe that two provisions, building and teacher wages, would be enough. Generating the others should not be a problem. Under the same project, my efforts in children centred methods were published, along with those of other teachers, in the form of 'Shikshakpothi' that contained a large variety of activities. This was based on the Minimum Levels of Learning for classes I to V. For each topic, at least five methods were suggested.

Welfare of the Teacher Community

I began by helping senior teachers to prepare for the Middle exam which was necessary for them to get their increments. At that time I realised how much a school teacher is exploited in our system since he is economically weaker. I thought of doing something that makes a teacher economically stronger. I started a Teachers' Society. Teachers deposit small amounts every month and that money is lent to those

teachers who need it. That idea became very popular in the entire district and the society has developed noticeably. Wherever I worked, I formed this kind of Society so that teachers need not borrow from the lenders. This gave teachers some monetary support.

Wherever I have worked, from 1961, I have been involved in developing infrastructure for my schools with local resources. There came a time when people used to ask us, "What can we do for you?", or, "I want to give this much money to the school." We always asked them where they wanted us to spend their money. Was there something that they found needed improvement? If they gave money for the classroom, furniture or garden, that money was spent for that purpose only. Sometimes we had to refuse donations since we had given our best performance.

At the same time we teachers also performed our duty earnestly. The Nagada was a school that had eight standards. Each teacher accepted responsibility for five students in each class. Then that particular teacher was supposed to look after those students, meet the parents regularly, get familiar with the socioeconomic conditions of the children and guide them if there was some problem. The teacher was responsible for seeing that every activity of the school became interesting for that child. Whether that teacher taught that child in class or not, he would personally pay attention to the students in this way. This has been the reason for good academic achievement of children.

We also realised that one has to give also if one takes. If the villagers gave water facilities, or donated to the school's cause, we stood by them. Once Nagada suffered from water scarcity. The villagers wanted a tube well to be dug and for this some money was to be mobilised from the well-to-do families. They requested me to talk to such families and ask for donations. We talked to several people. We mobilised enough money and bought a motor that supplied water to the whole village. This incident proved to be a landmark. At present there are six bore wells in the village, made with money donated by the people. The village *Panchayat* pays the electricity bill and water problems do not exist at all in this village. In 1993 a group from the DIET visited our school. After they saw everything they asked me, "Sir, why have you not put a board displaying the name of the school?" I said, "Why? There is no need. Why should I spend a thousand rupees on the board? With that money

I could buy carpets or some toys for my students." They said again, "If not for your sake, get a board for our sake. If we show a photograph of this school to somebody and say that this is a government school, people will not believe us." I asked, "Why not? Here whatever you see is given by the villagers. The villagers own this. This is a government school only because the government pays the wages of the teacher." When a Lions' Club came to know about this incident they donated two boards.

Whether it be the problem of water, sanitation or any other, we always helped villagers. In fact, we took the first step and then community joined us. It was then that the community helped to build rooms, a big hall, cultivate a beautiful garden and add water and electricity facilities. Obviously there was no better place than the school hall for occasions like marriages. We allowed people to use the school premises on such occasions and they gave something to the school as a reward. Once a teacher had received a good deal of money of his insurance and he donated all the money to the school. We made a beautiful temple and placed a beautiful idol of Goddess *Saraswati*, made in Rajasthan, in that temple. All these donations were spent on buying swings and other things for the garden.

Sometimes people came to me and said that they wanted to donate some clothes to poor children. Though I always welcomed such offers, I did not want the child to feel helpless. I always believe in maintaining children's self-respect. Therefore, I would request them to give me the cloth for the uniform. Whenever I found some students who needed help with uniforms, I called them, gave them the cloth and said, "Here is the cloth. Go and get it stitched." When the child pays for stitching, he does not feel that he is dependent on somebody. I always had 10-12 sets of material for the uniform in my box.

The community participation that resulted was appreciated by the District officials. The Collector, after a visit to the school, told the people of Nagada that to cut down on the screening work associated with the problems they took to the Collector's office, the HM's recommendation would do. The next Collector went a step further, and opened a register for that village alone; any query had to be responded to in one week. I think that the trust a teacher earns is her or his best award.

My primary schooling began in Nalchha, my birth place. My father was a teacher in a nearby school. During my school days he was transferred to another village. We stayed in a hired room about 4 km from the school, and used to walk to school together. During that time I noticed that many village people came to meet my father with great love, respect and affection. I liked it and thought of becoming a teacher. My father's devotion to his work has been a great source of inspiration throughout my life. One day I was very tired and so I asked my father to stay back at home with me. My father scolded me with these words, "My son, you won't be able to digest even one day's payment of my leave, the money will be wasted with interest." I'll never forget these words. One day my father received a letter that my mother was seriously ill. My father and I went to the Collector to request a transfer. He could understand the seriousness of the matter and transferred my father to Nalchha. But my father requested a transfer to Gugali, a small village near Nalchha. When he came home, my mother asked him the reason. He said he wanted to teach those who were neglected.

I started to teach in 1989. I came to know that there were many schools in that area from which no one had ever passed Class V. I decided to change the situation in my school and persistently monitored the children's progress. As a result, 15 children passed Class V within my first year in the school. Because of my mother's ill health I requested a transfer to a neglected village near my home village.

Increasing Presence by Changing the Community's Perspective

According to the school register, there were 65 students enrolled, but I was pained to see only 15 children attending. I started with the minimum: open the school at 10 a.m. sharp and run it till 5 p.m. sharp. This caught the

attention of the people and the children. One day one or two village people showed up. I took the opportunity and discussed with them the problem of low attendance. Thus I got two more minds which shared my problem. I told them to do whatever they could. Gradually their influence on people compelled parents to send their children to school. I believed that the community's educational situation could be improved if education could be seen as '*vidhya*', something valuable in itself. On Independence Day 1993 I expressed a desire to build a temple to 'Goddess *Saraswati*'. This idea was welcomed wholeheartedly and I got the people's support to celebrate the Independence Day by making a temple.

Once I noticed that the children were not doing their homework properly. I thought I should correct everyone's notebook, but if I did that myself, it would take a long time. I made pairs of students who checked each other's work. Students who were making mistakes were punished mildly till they improved. This pair system worked well.

I realised during my teaching that the children did not understand how to write essays on simple topics like animals and birds. So I changed my way of marking attendance. I made each student verbalize a sentence while answering attendance calls. For instance, if I want to teach an essay on the cow, I would ask the first student, say Mohan, to stand up and speak a line about the cow, such as the "cow is a useful animal because it gives us milk." The next student would be asked to add one more statement about a cow. These sentences were written on the board and later on I helped the students arrange these statements into a coherent passage.

To encourage them further, I started arranging competitions which are rather rare in small places. I also started giving prizes using my own money; once I gave a wristwatch to a student who stood first in a state level competition. At that time I did not have any family responsibilities and so could spend a lot of money on the children.

The school building was in a very bad condition. Official help was not forthcoming, and the building was positively dangerous. Since there was not much the villagers could do either, I hired a room. We then resorted to direct action. The villagers blocked the highway and I met the Collector. He intervened with a sanction of Rs.2,25,000, and I was put in charge. I made some changes in the design to save on costs. I was pulled up, but we had a better school for Rs.2,00,000.

With improved physical conditions, I arranged a fair for the girls. I wanted to encourage girls from all the surrounding villages so that they would feel motivated towards studies. I involved the same Collector who asked Principals of the schools in the block to bring at least 8 to 10 girls to my village. We put up a number of stalls. People helped me in making all the preparations. Other villages put up their own stalls. The Collector himself came down.

Another activity I introduced in order to help children learn to speak about themselves and also to help parents know their children better was that of diary writing. Students themselves made their 'own diary' in which they

wrote about what they wanted to eat, wear, read, play etc. They also wrote out their complaints against the teacher and parents. Every Saturday we read out these diaries and then we called the parents to tell them about the findings. Other teachers in the district also do this activity in their own ways.

While teaching, I first ask questions related to the lesson and then afterwards I teach the lesson. I want students to read the lesson and get the answers on their own first. This interactive session at the beginning is a matter of excitement. Now the students have developed the habit of reading. To help children develop the habit of studying regularly, I make a questionnaire for six days at a time, so that they don't forget what they learnt during the week. I make groups and put questions to the group. I give prizes to the winning group.

During my career one thing I have realised is that you should win the hearts of children. I sit with my students, there is no chair or table where I teach. Any student has the right to point out my mistakes. Developing courage in children is the main task of a teacher.

At present I am working as the HM of the primary section in the Labour India Gurukulam Public School, Marangatupilly, Kottayam, Kerala. I have been working as a teacher in the same school for ten years. I am also an artist and have an interest in drawing, painting with water colours and oil, and drama composing and directing.

I think it is very important to let children learn by involving them in various activities. This idea of involvement in activities is very common these days but what I feel important is to give children a chance to manage the activities on their own wherever possible. My hobbies have been very useful in trying out my ideas related to teaching methods. Some of the methods I have devised for my class children are described below.

Dramatisation of Lessons

Part A: for this first of all I allow the students to read the lessons in the textbook. The students are given time to read the lesson very carefully and then I ask them to prepare dialogues relating to the lesson. Thus the lesson would be converted into a drama including common familiar funny words and phrases.

Part B: Then students are given direction and guidance to prepare the Finger Puppets representing the characters in the drama they have already written.

Part C: The students are then directed to colour the puppets and to dress them. The students are generally very enthusiastic about this part and very careful in selecting apt colours and dresses for the puppets they make.

Part D: The students are then asked to demonstrate the drama using the puppets in the class as well as in the school Assembly.

These activities help the students to understand the lesson better. They remember even the minute points in the lesson. I have found dramatisation and demonstration

a successful method for imparting knowledge and understanding.

Preparation of Teaching Learning Material

I have a habit of using teaching aids and toys which I make from easily available waste materials like empty bottles, coconut shells, match boxes etc. Most importantly I involve students in making these things. They are very interested in this activity and so participate enthusiastically. For example, to teach the students fundamentals of geography, I introduced globe making. Using balloons, paper, gum and colours almost all students made globes. On this globe the students mark the altitude, latitude and continents. With the help of lighted candles, the fundamental principles of rotation, revolution, day and night, can be understood easily.

Environment Studies

For environment studies my class children are involved in collecting things like leaves and feathers and arranging them to make the shapes of animals and birds. A related activity was an exhibition of medicinal plants. The students were given two weeks time. Some of them made an album using the dried leaves of the plants. They were able to say the names and uses of the plants.

I encourage the habit of collecting information from various sources through my 'wall magazine' activity. Children in each class take responsibility for wall magazine in their class by collecting various information/material from newspapers and magazines.

We have developed a Botanical garden in our school premises. In order to understand the observation skill of the students we send them to our Botanical garden occasionally. There the students have the opportunity to observe butterflies, birds, plants, fruits, leaves and flowers.

The students then have to write and submit very detailed notes regarding their observations.

Motivational Tactics

I have arranged to have a 'Roll of Honour' for each class wherein a board is placed outside the class. According to the assessment/evaluation of an activity a coloured token is placed against the names of the students. At the end of the month the children have to find out the total points (as

indicated by the colours) secured by each student. The good students are appreciated in the Assembly; the scores are recorded in the students' diaries for the information of parents.

Another tactic is the use of stamp sized stickers with words like Good, Congratulations, Smart, and Excellent, as remarks on the children's work. I have noticed that the students become very happy and thrilled when they get such a sticker. At the end of the month certificates are given on the basis of the number of stickers each receives.

I have been working as a primary school teacher for the last 21 years. My interest has been in improvement of Mathematics teaching. Mathematics is often a matter of fear for children because they find difficulty in grasping the basics, and as they progress through the ladder of school education, the conceptual difficulties become cumulative. I am interested in presenting math to children in non-traditional ways.

I have invented several techniques and written plays which are very useful in the effective presentation of basic mathematics. I have produced an audiocassette which contains many of the songs which I composed to make learning of mathematics easy at the primary level. I have also prepared a videocassette which presents many complex mathematical concepts through the play-way method. I also use self-made TLMs in my daily practice.

To encourage other teachers of mathematics to use non-traditional ways, I have written a book titled *Ganithabodhanathilakam*, a guide to teachers of Mathematics at the primary level. The book deals with, among other things, how Mathematics can be taught through several games that children play in an open-air stadium. Now, I am also associated with the SCERT in conducting training programmes for its resource persons as well as teachers.

Here is a sample activity from the book.

Introducing the Concept of Multiples

The teacher leads the student to the playground. He classifies them into groups of ten. All of them are given three pieces of chalk each. Suppose there are thirty students in the class. That means there are three groups. We shall give the game to the first group. Let the second and third group watch the game.

First step

We should have a leader in each group. The leader of the first group who is standing in the circle puts his three pieces of chalk on the ground. The student who is standing

left to him does the same, and he counts them and finds that three plus three equals six. The third one does the same and finds out that three plus three equal nine. Thus we continue the game until the tenth student finds out that $3+3+3+3+3+3+3+3+3+3=30$. They understand that repeated addition is going on. The members of the other groups who were watching the game till now are given the same game. Thus they understand that repeated addition is going on. The leader can be changed.

Second step

The leader of the first group puts down his three pieces of chalk at the centre and says three ones are three. The second student puts down his pieces and says "two threes are six". It goes on till the tenth one takes his chance and says that 'ten threes are thirty'. Now, the leader is changed. All the students pick up three chalk pieces each from the centre of the circle which they have formed. They repeat the game with new leader till each student gets the chance to say the multiplication table of three.

Third step

Now each student is given a card each. The teacher asks them to write down the figure three on it. The game is repeated using the card instead of pieces of chalk. This step is designed to lead the student from the concrete to the abstract. All students are now able to say the multiplication table as was done in the second step.

Fourth step

When the teacher is confident that the students have understood the multiplication table of three he can ask them to write it down on a sheet of paper. The teacher's help and supervision are necessary.

This method is useful for introducing all multiplication tables (2 to 10). The game is helpful especially for slow learners. The students get pleasure out of learning because they think that they are only playing.

Reinforcement play

Lead the students to the ground and ask them to form a circle by placing one's right palm on the other's left palm. Let any one start the multiplication table of three. Let that student say three ones are three and give a clap on the right palm of the student on his left side. The second student says two threes are six and gives a clap on the right palm of the student on his left side. This continues till the fifth one says that five threes are fifteen. This is a very important part of the game. If the fifth boy gives the clap saying five threes are fifteen and if the sixth receives the clap he will be out but if he withdraws the hand fifth will be out. The game continues till three tens are thirty. At this point again the student who is receiving the clap is out unless he withdraws his hand. Otherwise the boy who gave the clap is out of the group.

We can start the game all over again for any number of times till only one is left in the group. Remember that a student leaves the group only at multiples of 5 and 10. While this game is going on, the students who come out of the group will form groups of their own and will repeat the game.

This play will help the student to study and learn the multiplication table in an interesting way. It is useful for all the multiplication tables and increases the student's power of concentration and confidence.

Other Activities

It is also very important that teachers consciously use methods to attract the children to school as schooling is

often not attractive to children. I use approaches which are a little different.

Taking attendance: I have been using an attendance chart which is kept within the reach of children. Children of my class (Class I) themselves find out who all are present and mark the attendance by putting an 'X' mark in the Chart using a sketch pen.

Informal participation of children: Children generally exhibit a habit of collecting things. To involve them in the discussions, all the new articles that the children bring to the classroom are made topics for discussion and children are encouraged to talk about them.

Action songs: This is a very common feature in primary education. The novel thing in my activity is that in my class, lessons and action songs specially programmed on a computer are displayed to the students.

Daily practice of letters: Picture charts in which each letter of the alphabet is reshaped into a picture, are used to reinforce the alphabet.

Parents' meeting: Every week I call a parents meeting. Parents are invited to assemble at some particular place every week near the school and the problems of the children are discussed with them.

Note: Mr. Chacko won the Commonwealth's CASTME award for Mathematics Teachers in 1997. He has also received the BOLT Award (Broad-Outlook-Learner-Teacher Award) instituted by Air India and Malayalam Manorama in 2003, and was the winner in a music writing competition held by the Sree Chithirathirunal Seva Sangham in 1994.

In Kerala, there is no separate syllabus for teaching deaf children the Malayalam language. The regular syllabus prepared by the State Council of Educational Research and Training is followed. The language class is over in 45 minutes in which generally questions and answers given in the textbook are written in notebooks and given. Deaf students copy these just as they draw pictures—drawing, and joining the letters. But they may be unable to speak, write or understand what is read, because they do not hear the spoken language and so are unable to talk. In the absence of understanding, control of the language is lost. But along with writing names of the pictures of the objects, if they are made to repeat the names orally many times, with the help of a hearing aid, they will remember. But still, they will not know any verb. They cannot write or speak by adding the appropriate tense. So, if a special syllabus is made systematically, stage by stage, for each class, and taught by making the students do the verbs/ actions, making them speak and write, with repetition at frequent intervals, the verbs can be remembered.

Background for Writing the Book, "A Malayalam Language Guide for the Deaf"

Children study in my school (for the deaf) from nursery class onwards. In my school the main method is that of giving importance to speech, that is development is sought through the method of speech and children learn by understanding the movement of the lips. The children of the school have been divided into four houses. For these children, periodically, drawing and copy-writing competitions are conducted. Once, it was decided to conduct a story writing competition. Children of Classes VIII-X were seated for the competition. The name of the story was written on the board – "Rat and Lion", a picture of the story was also shown. Children wrote the story. When the time was over, the papers were collected. While marking the papers, our eyes were full of tears. It was

painful to see that even the most brilliant student of Class X had just written the words – "Vala" (net), "Eli" (Rat), "Simham" (Lion); only these words, that is all.

From that day onwards, I was determined to teach the students how to write and speak the Malayalam language without mistakes, and on how such training could be imparted continuously. The next year I taught Class I. In keeping with their age and speech ability, short words and small sentences were taught continuously in an interesting action mode. I wrote these exercises in a book and preserved it. I had to preserve the material as the sentences need to be repeated intermittently since the children cannot hear. Along with these children I then taught Classes II-IV in the same manner. Today, those children speak and write without grammatical mistakes.

During this time, I could also innovate, e.g. when we ask "Aru" ("Who?"), the answer comes easily—the name of the person. But when asked "Arodu" ("to whom?") the "odu" answer has to be given—"to" is added to the name or person, and spoken, with particular endings that depend on the subject who is being acted upon. For those who can hear, this change need not be specially taught. They say/speak even without special effort at pointing out the endings. As deaf children do not have the hearing sense, they cannot learn on their own by listening to the spoken form. To teach how the changes have to be made, I developed rules for writing, by representing the type of question being asked with symbols of vowels or 'chandrakala'—crescent on the top of a letter. The child has to recognise this and write down the appropriate answer. This principle has been extended to combining two words. For example, milk is 'paal' in Malayalam and fruit is 'pazham'; 'milk and' is 'paalum'. If the ending is represented by a symbol in the question which the teacher asks, the child can reply correctly.

Compiling the things I wrote and used, the handbook "A Malayalam Language Guide for the Deaf" was made. I told the other teachers also about the changes in the

children of my class. They also experimented with my book. In the next teachers' meeting, there was a discussion on the subject. Thus, in my school "this book can be followed" was a resolution that was passed and minuted. From this year, in all classes, this book is being used.

Today, in Kerala's 45 deaf schools, about 9000 deaf students are studying. Their major problem is their inability to handle the language. But there is no Malayalam language guide or way-finder. It is this gap that I have filled, motivated by my own experiences with deaf children.

Some sample lessons are presented below in brief:

LESSON - 1

Malayalam	English
"Enikku* Mithai* Tha"	(Give* Me* Sweet*)
"Tha: - "Tharika"	(Give - Give)
"Book Tha"	(Give Book)
"Pencil Tha"	(Give Pencil)
"Chalk Tha"	(Give Chalk)
"Poovu Tha"	(Give Flower*)
"Vadi* Tha"	(Give Stick*)
"Vellam* Tha"	(Give Water*)

After making two students stand up, place the book in one student's hand. The other student extends the hand and says "Tha" (give). (Repeat using different articles.)

LESSON - 2

Malayalam	English
"Enikku* Apple* Thannu"	(Gave* Me* Apple*)
"Thannu"	(Gave)
"Poovu* Thannu"	(Gave Flower*)
"Book* Thannu"	(Gave Book)
"Chalk Thannu"	(Gave Chalk)
"Vadi* Thannu"	(Gave Vadi*)
"Thoppi* Thannu"	(Gave Cap*)
"Vellam* Thannu"	(Gave Water*)
"Slate* Thannu"	(Gave Slate*)
"Padam* Thannu"	(Gave Photo*)

(After placing a flower in a child's hand, the teacher says "Tha" (give) and at the same time also extends her hand. When the flower is given, she has to say "Thannu" (gave). Repeat this with other students.)

LESSON - 3

Malayalam

"Amma* Va"
 "Va* Varika"
 "Bindu* Va"
 "Rahul Va"
 "Kannan Va"
 "Sita Va"
 "Sharan Va"
 "Bibin Va"

English

(Mother* Come*)
 (Come* Come*)
 (Bindu* Come*)
 (Rahul* Come*)
 (Kannan Come*)
 (Sita Come*)
 (Sharan Come*)
 (Bibin Come*)

(Saying Come) Va, each child is called near the teacher.

LESSON - 4

Malayalam

"Ente* Amma* Vannu"
 "Bindu Vannu"
 "Rahul Vannu"
 "Kannan Vannu"
 "Sita Vannu"
 "Sharan Vannu"
 "Bibin Vannu"
 "Amma* Vannu"
 "Acchhan* Vannu"
 "Pooccha* Vannu"
 "Mazha* Vannu"
 "Katu* Vannu"
 "Eli* Vannu"

English

(My* Mother* Came*)
 (Bindu Came*)
 (Rahul Came*)
 (Kannan Came*)
 (Sita Came*)
 (Sharan Came*)
 (Bibin Came*)
 (Amma* Came*)
 (Father* Came*)
 (Cat* Came*)
 (Rain* Came*)
 (Wind* Came*)
 (Rat* Came*)

When each child comes, she is asked to say "Vannu" (Came).

LESSON - 5

Malayalam

Bindu* muttathhu* poyi*
 "Poyi*"
 Bindu* Poyi*
 Rahul Poyi
 Kannan Poyi
 Sita Poyi
 Sharan Poyi
 Bibin Poyi
 Amma* Poyi
 Kakka* Poyi
 Mazha* Poyi
 Car Poyi

English

(Bindu went to*
 Courtyard*)
 (Went*)
 (Bindu* Went*)
 (Rahul went)
 (Kannan went)
 (Sita went)
 (Sharan went)
 (Bibin went)
 (Mother* went)
 (Crow* went)
 (Rain* went)
 (Car went)

(After each student ("Poyi") goes, the teacher says "Poyi" (Went) to other students. Add words known repeated.)

LESSON - 6

Malayalam

English

1. "Ente* Peru* Vinu*
"Enthu*"
"Ninte* Peru* Enthu*
"Vinu"
Ninte Peru enthu?
"Sita"
2. Itu* enthu?
Poovu*
Itu Enthu?
"Vadi"
Itu enthu?
Chalk
Itu enthu?

- (My* name* is Vinu)
(What*?)
(What* is your* name*?)
(What is your name?)
(What* is this*?)
(Flower*)
(What is this?)
(Stick)
(What is this?)
(Chalk)
(What is this?)

"Book"

(Book)

3. "Atu* Enthu*?
Pencil
Atu Enthu?
Rubber
Atu Enthu?
"Bow" (Girl's hair clip)
"Atu enthu?"

- (What* is that*?)
(Pencil)
(What is that?)
(Rubber)
(What is that?)
(Bow)
(What is that?)

Note: Dr. Aranmula Hariharaputhran, Executive editor (Retired), Sansthana Sarva Vijnana Kosa Institute, Thiruvananthapuram, has examined the book for its content and relevance, and has placed it in the context of the greater importance assigned nowadays to the speech method of learning, in contrast to the silent method—finger movement method.

My main objective in teaching science is to inculcate a scientific temper among my students, by communicating concepts in science in a congenial environment. I work in a rural school, 30 km from the town, and all my students are from socio-economically backward families. I have indigenously developed many teaching-learning aids for science. I describe below one multi-purpose tool which can be used to teach five concepts at the primary level and three at the upper primary level. I started the tool with only one concept in mind, but after looking at the enthusiasm of my students, I was forced to look at multiple uses of the same tool.

The concepts I teach are:

Metal expands with heat (I use the examples of the automatic iron and geyser with a thermostat).

Conductors and non-conductors (examples are drawn from metals and graphite, non-metals like paper, plastics, wood, glass, rubber, charcoal and stone.

Rectilinear propagation of light.

Burglar alarm/automatic street light: I explain the principle of Light-Dependent Resistance (LDR), when, depending on the intensity of light, the resistance offered by the LDR to the flow of current in the circuit is more or less.

Multiple reflection: I draw on the example of the kaleidoscope, and use four mirrors to explain this concept.

Electromagnet: There are some metals which can be made to acquire magnetic properties by passing electric current through a coil of wire wound on the metal.

Linear motion and circular motion.

Law of conservation of energy: (chemical energy to heat energy, as when we strike a match; electric energy to light, sound, mechanical, and magnetic energy; light energy to electric energy, as in the solar cell).

Materials Required:

- ① One big size card board box (like Horlicks case box)
- ② One shoe box

- ③ One small card board box (fan box)
- ④ Worn out tube light starter.
- ⑤ Eliminator
- ⑥ IC 555
- ⑦ Worn out relay (for making electro magnet)
- ⑧ Solar cell
- ⑨ Metallic rectangular sheets of some size cut off from waste tin: five. (For proving rectilinear propagation of light)
- ⑩ One separate rectangular card board of size as much as the top of the bigger box.
- ⑪ Toy train runs on circular rail
- ⑫ 4 mirrors of same size that may fit into the fan box.
- ⑬ Transformer (12-0-12v) 2no.
- ⑭ Relay 12v two pole single contact:1
- ⑮ Relay 12v single pole:1
- ⑯ Push to off switch:1
- ⑰ Bulb holders: 6
- ⑱ Zero watt bulbs:5
- ⑲ 100 watt bulb: 1
- ⑳ wire as required
- ㉑ waste deflection meter (to prove energy conservation in the solar cell)
- ㉒ Screen made by paper or taken from lab
- ㉓ Match box
- ㉔ Varieties of metals and non-metals
- ㉕ Gift paper for decoration.

Initially I tried to explain one concept.(metal expands due to heat), by borrowing from a book called "Novel Experiments" by R.G.Lagu & S.B.Mhetre, Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research, published by Oxford University Press, Bombay, in 1985. When a burning match stick is held under the bimetallic strip that is taken from waste starter, it unfolds, expanding due to heat. Thus the circuit is completed and the lamp glows. As the match stick is withdrawn, the strip will cool off and therefore curl back. Thus the strip loses

contact and the lamp will go out. When we use the above circuit, we are unable to demonstrate other concepts, because, as the strip cools off, the light does not glow for the other concepts. To overcome this, and to avoid shock (while testing conductors / non-conductors), I planned (a) to make a 100w bulb glow continuously till the other concepts are performed and in the meantime (b) to show the strip getting back to its original position when it cools. Using transformers relays and IC 555 in the circuit, I succeeded. When the metal cools off, only the five zero watt bulbs go out and the 100w bulb glows continuously. Moreover, the bimetallic strip receives DC current; so we can perform the conductors experiment using various metals and non-metals easily without fear of shocks.

Rectilinear Propagation of Light: The metallic rectangular sheets of same size must be fixed on separate cardboards in such a way that holes made on it should coincide (for long lasting stiffness metallic sheets are used). On one side of the 100w bulb one of the sheet with rectangular hole or any other shape is fixed to explain the concept. (A screen may be fixed to receive the image.)

Electro Magnet: A bolt with a coil of wire wound on it is taken from a waste relay and is kept on the front side of the bigger box. The coil is connected to the control circuit. The bolt will become magnet as soon as the current passes through the coil.

Photo Electric Effect: A solar cell connected with a deflection meter is kept on thermocole. When it is shown on the path of the light, there is a deflection in the meter depends upon the intensity of light, due to the conversion of light energy in to electrical energy.

Burglar Alarm / Automatic Street Light: Prepare the circuit board and keep it on the cardboard shoe box. The LDR must be kept out of the small hole in the box and the set up should be kept on the path of the light rays. When we disturb the path of the light, the LDR allows the buzzer to make a sound.

Multiple Reflection: Four mirrors of the same size are kept at right angles to each other till multiple reflections is viewed. The edges are fixed with sellotape to keep the positions fixed. Scrape off 25p. coin size on any one of the mirror to view the reflection. The set up must be kept inside the fan box whose inner sides are made white. The smaller box with mirrors is kept inside the bigger box and a hole of same 25p coin is made in the smaller box as well as in the bigger one in such a way that the multiple reflection is viewed. A small bulb inside the mirrors is connected in the circuit for lighting and also for serving as an object.

Fun Filled Activity to teach linear and circular motion: Take a card board of 20x20 cm. size. Waste gel pen refill may be fixed on the centre of the board. Two thin aluminium or copper sheets are rolled on the refill and made to hold firmly. In between the rolled metal sheet, a bush (non-conductor) must be kept to avoid contact. Bring two terminals of wire and connect to the aluminium sheets separately through the bottom hollow space of the refill. Now two thickest copper strings is made to act as "Slip Rings" (i.e. contact on movement) and are connected to a telephone wire. In the toy train, the batteries are removed and then the terminals are connected to the telephone wire. This set up is permanent. In another cardboard of required size, an inclined plane is made. At the bottom of the plane, fix a metallic barrier in such a way that it makes the rolling metallic marble rest and made the ball to act as key. When it acts as key, the train runs on the circular path. When the ball is taken, the train does not run. The slip rings and the metallic barrier are connected to an eliminator through series connection.

This teaching aid has been extremely well received. The cost is not very high. It has created an enthusiasm among students to know more about the principles they are learning. It has also promoted observation skills among the students.

I have been working in Classes III to VI since 1997. My aim has been to carry out innovative practices for quality education so as to "market" education to the rural masses. Students in my school invariably belong to socially, economically and educationally backward families and lack self-confidence. The concern for education among the parents is poor, but they depend to a great extent on government scholarships, noon-meals, free books, notebooks and uniforms. The village is about 25 kms from Pondicherry town, and the school (Classes I-VIII) caters to four other villages as well. Till 2001, there was only bare flooring and a thatched roof. The school has always had a shortage of teachers. After competency-based teaching was introduced, we found it easier to develop an activity for each competency, seen as a goal of education. I kept the following objectives in mind:

- Promoting a teacher as a change agent and a social engineer;
- To acquire self confidence through self-achievement;
- To make teaching learning more interesting;
- To develop a good character and all round personality;
- To prevent drop out;
- To prevent the transition from "student worker" to "child labourer" and
- To make children take care of the environment.

Activity I To realise that human life is precious and valuable. Helping others without any expectation of reward.

In 1998, Class VI children were being taught a lesson called "The little Adventurer". When the meaning of 'Adventure' was being explained, one student interrupted and cited an event in which she had been rescued in an accident. Once she was playing along the banks of river Sankaraparani, with two school mates. Due to sudden flooding, all three girls had been swept away and were almost drowned in an eight feet deep quarry pit. Only one girl knew how to swim, that too only partially. She tried to

save the other two girls but she couldn't as the other two girls dragged her into the pit. They screamed, and one of their school mates, who had brought his cattle to the river, rushed to their help. He pulled them out one by one. The boy (Class VII) was immediately called. He was a poor boy with a widowed mother, and spent his spare time grazing cattle and making bricks. When he was brought to the class, he narrated the incident and assured us that he wouldn't do it in future! He was afraid that the teacher would punish him and the three survivors for having gone to play in the river. However, the boy's actions were appreciated, and the authorities informed about what had happened. A complete review of the incident, and documentation, were made by the school. NGOs made their own assessments. The boy, Kuppuraman, was awarded the National Bravery Award in January 2000 and the Jeevan Raksha Award of the President of India in August 2000. The entire incident was converted into a learning opportunity, and was taken up as a part of value education.

Activity II One can live even after death, if he donates his eyes and other organs.

Two lessons, one in Class V and one in Class VII dealt with issues like blood donation. As part of teaching these lessons, a blood donation camp was organised so that students became aware of the importance of helping people in medical need and of the 'Red Cross Society'. Students brought their siblings and parents and made them donate blood. Since the organization was done with the help of doctors, students learnt names of different blood groups, how blood was tested and how blood pressure was measured. The concept of a Blood Bank was also discussed. Similarly, an incident when an aged man (agricultural labourer) carried his 19-year old physically handicapped daughter to the school, collapsed, and then requested guidance in getting a tricycle, was used to organise facilities through a well known trader who was concerned

about physical disability. Such acts sensitize the students, and also project the teacher as a role model for community action. Getting footwear for the children through an NGO was another such activity which conveyed the need to avoid skin diseases. These were major problems in the rainy season, since the children were usually barefoot and after coming to school had to sit on a mud floor. (Since 2003-04, all students at the Primary and Upper Primary levels in government schools are given free *chappals*.)

Each activity has an objective, and is linked to teaching or discussion inside the classroom. Some have been taken up by official agencies. One objective I had was: To develop self-study/ self-learning, and referencing skills, through the use of a dictionary. Most students couldn't afford to buy dictionaries. With the help of the HM, an engineer who was also associated with an NGO, was contacted. Each student got a dictionary, and the same donor has been giving a dictionary to every Class VI student for the last six years. Another donor was requested to contribute the ancient Tamil work, *Thirukkural*, for Class VI students. Fifty two copies were obtained by the school, and these are now used by the children regularly. The state now gives free dictionaries to all students in Upper Primary and Secondary government schools.

One day the students of Class V were asked to narrate one joyful event and one sorrowful event from their lives. They were given one minute. One boy had earned Rs.20 at a brick kiln during his school holidays. This money was used to buy rice and vegetables one day when there was no food for his family consisting of his mother, grandmother and himself. That day was the most joyful for him. This triggered off a study, for which the help of an NGO called RACE was taken. The Government has also taken note of the study. The main focus was on how to prevent a student-worker from becoming a child labourer.

Most children belonging to the socio-economic groups to which the school catered, worked for some time during their holidays to supplement their family incomes. This meant that they could not undertake educational activities, like revisions and reading extra material. Such students should be worked on only during the school time, and efforts should be made to promote them to the next class. Detaining them in the same class most often would lead to their becoming child-labourers.

This work has extended to building a Parent Teacher Association for the first time in the history of the school, and other school-parent interaction activity. The PTA has played a very constructive role in ensuring that all children are enrolled in school. When the school did not have a cook (for the noon meals) for seven months, it was the members of the PTA who came to our rescue by cooking food for about 370 students every working day. The objective we had in mind was that if the teachers and the parents worked together, the identity of the school could move towards that of a "Community Welfare Centre". Many NGOs have been invited to the school to motivate rural illiterate women and youth towards children's education.

There are many other innovative activities, each with an objective, and each inspired by some condition in the school or schooling, which are not reported here. However, while doing all these activities the teacher must remember the following statement which I believe in strongly: "The teacher is also a second parent and the school is also a home." One day a student was bitten by a poisonous insect. The boy was taken on a motorcycle to the government hospital, which was 8 km away. When the parents came to know about this, I was thanked profusely, but the impression that the teacher is a second parent was reinforced.

Motor Skills and Improving Handwriting

Good writing is an indicator of good character. No one doubts the use of good handwriting. It helps not only in examinations, but can serve as a motivation to read. In 1995, when I started to teach, I found that children write by scribbling. It was difficult for them (or they did not bother) to maintain discipline as far as the shapes of letters, the use of lines for writing on, or the proper spacing between words, lines and paragraphs, were concerned. Often legibility became a problem. I started with the methods I had been taught—dictation and copy writing exercises. But they did not yield positive results. The lessons I learned were the following.

1. Instead of imposing good handwriting on students, something should be done to make them aware of bad handwriting.
2. No student should feel tired while writing. This implied that the muscles used in writing should be properly trained.
3. Writing should not be seen as a boring exercise. It should be interesting.

I reviewed the letters of the alphabet and identified three elemental shapes. All letters can be broken down into horizontal or vertical lines, a circle or its parts, or a leaf shape. An unconscious familiarity with these three shapes would help learning and writing the alphabet. I planned a three-step programme. The first stage was a preparation for the writing exercise, the second was the actual writing exercise and the third was work on the style of writing.

First step: Preparation for writing

- ① The first step was motivating students by emphasising the importance of good handwriting, and the need to get involved in exercises for handwriting improvement.
- ② The second step was developing skills in holding the pen properly—especially the use of the middle finger and the thumb, with the index finger being used to vary the pressure.

- ③ The importance of correct seating position and posture was a third element.
- ④ The final step was using appropriate games for motor development (development of the writing muscles).

Second step: Writing exercises

- ① Writing in the air
- ② Writing on the slate with a finger
- ③ Writing on the sand with a finger
- ④ Writing on the slate or board with a pen or chalk
- ⑤ Writing on paper with a pencil
- ⑥ Writing on paper with a pen
- ⑦ Except Urdu, all the major Indian languages are written from left to right. The students were given exercises in the same direction—for the letters, words, sentences, and matras.

Third step: Writing style

- ① The importance of 'mature writing' is emphasised. Mature writing incorporates both good handwriting and correct writing.
- ② Speed in writing is a second element that is stressed.
- ③ Certain rules regarding the left margin and spacing between paragraphs, letters and sentences, are then taken up.

Objectives

The objectives that were derived and communicated were the following.

1. Children should feel motivated for good handwriting.
2. They should be able to use the correct shapes of letters.
3. The writing should be legible.
4. The letters and the lines should be straight.
5. Spacing between the words, the sentences and the paragraphs should be proper.
6. Proper punctuation marks should be used.

Using the Devnagri script

First the letters of the alphabet were classified according to their shapes (as noted earlier). Then the children were

given practice in calling out these, and then writing in the air, writing with their fingers on their slates, writing on sand, writing with a chalk or a pen on their slates, and finally writing with a pencil and pen on paper.

Letters built around straight lines: *ga, ma, bha, na, tra*

Letters built with slanting lines: *ra, sa, kha, ae, sha*

Letters made with circle, half circle and leaf shapes:

a, aa, i, u, (all vowels) da, ha, jha, dha, gha, chh, cha, za, ta, la, va, ba, ka, fa, pa, sha, ya, tha, ta, tha, da, dha.

Evaluation

Before starting the activity, all the children were made to write a paragraph on paper. It was ensured that all the letters and *matra* symbols appeared in this writing exercise. Then the experiment was started. At the end, the same paragraph was given again for writing. To my, and the children's, surprise, the results were amazing. The children could see for themselves the improvement. I informed my educational officers about my work. It was then taken up in other schools of the region.

Motor Development Games

Proper coordination between one's thinking and the physical organs that respond to the brain is important. An expert who plays the sitar is different from a non-player in that the sitar player's thinking mind and fingers are properly coordinated to produce music. Likewise, a child's thinking about writing and proper coordination among the fingers, eyes and the brain, result in good handwriting. But encouragement in this direction has to be given early enough. The games devised for developing such coordination are described below.

Game 1

One boy lies on his back on the ground, and folds his legs towards his belly. Another boy stands in front of the feet. The boy on the ground tries to push his legs outward and the standing boy does not allow this. Children enjoy this game very much because they experience better control over their leg and hand muscles, and realise the potential of the muscles. I also assess which child gets tired in how much time.

Game 2

In this game, a child has to walk on his two hands and two legs and at the same time, he has to describe his

activity. For example, I am taking my right hand forward, or my right hand and right leg shall go further now. The child is encouraged to get more and more into detailed narration about his or her activities. This encourages thinking about the activity and its different aspects, while also pushing for coordination with the motor movements. Some variations which have been introduced are the following. Zigzag roads are made in the classroom and a child has to reach a designated place by walking on that road only. Or pieces of chalks are strewn about in the classroom and a child has to avoid them while walking.

Game 3

This game is meant to make children aware of the qualities of their hands and legs. Every child is given a piece of paper and asked to write with the hand other than the one with which he normally writes. Most of the children write with their right hands. When they write with the unused hand, at first they are unable to hold the pen properly, and when they hold it and try to write, the writing is so untidy and uneven that one feels like laughing. A lot of interest and excitement are provoked. The children realise the difference. The lesson that is taught is that the unused hand has not been trained, or does not have the necessary exercise, to undertake writing. This difference is not realised while driving a bicycle (since both hands are used). When sweeping, often girls use both the hands, but each hand is used for a specific purpose. These examples are used to bring out the difference between these activities and writing. The person who is unable to write with his left hand would find it very interesting to see how beautifully a left-handed person writes with his left hand.

A variation of this game is asking a child to write with closed eyes or with a blindfold over the eyes. When the child opens his eyes, he is very surprised to see how untidy the writing is. But when the exercise is repeated, the untidiness comes down and the legibility goes up. The lessons derived are the importance of eyes in good writing habits, and the value of practice.

Game 4

Two children stand facing each other. They are told what they are supposed to do. The first child touches a

part of the body of the second child. The second one is also supposed to touch the same part of the first child. Usually the second child uses the hand that is directly in front of the hand used by the first child. Repeated playing of this game gives children a good understanding of left and right.

Game 5

The entire class can participate at a time. Only two students stand aside to point out the mistakes of the players. All the children stand in lines. The teacher gives some commands like raise your left leg, right leg, right hand, touch left hand to the right leg. The commands are given rapidly so that children get just the minimum time to think. The observers keep on pointing out the mistakes. This ensures control over muscles and reflexes.

Game 6

In this game, a child lies on a rug and moves as if he is swimming. Usually, the use of the body parts is uncoordinated and a lot of strength and energy are used—so much so that children laugh. Children are asked to play this game at home also. The lesson that is finally brought out is that so much strength and energy are not required—with practice, coordination streamlines effort. Exercise is also a benefit.

Game 7

A boy goes to the blackboard with two pieces of chalk, one in each hand. He draws a vertical line in the middle of the board. Then he extends his hands in opposite directions and makes two marks with the chalk pieces. His effort should be to make the marks at equal distances from the middle line. Now he is expected to draw a circle connecting the marks and the line—both the hands should move at the same time. Usually, a child will pause at many places while drawing a circle. It is very difficult to move both hands at the same time, while paying attention to both halves of the circle. But my intention is to help the child understand the limits of the muscles and their function.

Game 8

In this game, two children stand opposite each other, at a distance of about two feet. If both the participants are of the same height, it is better. They have to extend their

hands and bring their palms together. Then, without entwining their fingers, they are supposed to push each other back.. Each player has a line drawn three feet behind him, and the objective is to push a child to that line.

Game 9

In this game, all the children stand in a circle and follow the commands given by the teacher. The commands are meant for the movement of the eyes only. Like left, right, up, down. Initially the teacher gives the commands slowly, and then increases the speed. The teacher can change the sequence of the commands. This leads to mistakes from the children. The children also face difficulty in following certain commands. These mistakes and difficulties are then pointed out and appropriate lessons drawn.

Game 10

In this game, the child has to employ only his eyes and his powers of imagination. The teacher draws eight to ten points on the board, which, when connected, would make some shape or picture. The teacher should ensure that the children are familiar with the shape or picture, and would be able to recognise it. The children are then told to hold their hands behind their backs, and using just the eyes, the eye muscles and imagination, to visualize and recognise the shape. The hands are held behind the backs, as some children use their fingers to draw the shape on the slate in order to identify it. Once the use of hands is prohibited, they are forced to use their eyes and imagination. The children who recognise the shape write the name of the shape and their names on pieces of paper.

Game 11

In this game, the flour is used. The child is told to make use of the proper amount of water and flour and process it in such a manner that no flour sticks to the hands. Then the job of making toys from the dough starts. The hands, the brain and the eyes have to create something which can be called a proper toy. For instance, while making a doll, what should be the width and the length of the body parts, and how much time will it take? Such questions are to be verbalised and answered.

With a little thought and experimentation, it is possible for a teacher to devise simple exercises that help achieve the motor skills-related educational goals.

I have retired as a teacher but believe that good teaching must have three characteristics: minimum labour on the part of teachers and students, maximum knowledge for the students in the minimum of time and the sustainability of this knowledge.

Pronunciation

Initially, there were few students in my class who studied or spoke anything. The other teachers used to say about them, "They will remain like that. They come, play and go back." Learning among such students remained weak. They were unable to answer any questions put to them. Many of these children could not identify a letter of the alphabet written on the board. After some study, I found that the reason was the children spoke the letters in a series, for example, the Hindi *Da* would be part of *ta, tha, da, dha, na*). They were able to call out the entire set. Older children, after they have struggled through this, end up pronouncing words wrongly. The written form, which follows the spoken, thus results in errors. I did not want to introduce the children directly to words and pronunciations. I thought I should show pictures and motivate the children to tell stories from the pictures, thus helping them develop their oral expression ability first. This also helps in reducing the distance between the teacher and the taught. Put a finger on a picture of a mango and ask a child what it is. The child will first see the picture. The second action would be to understand it. The third action would be to verbalize whatever he or she has understood. Alphabet learning is nothing but bringing children from the known pictures to unknown pictures.

The method: Place your finger on the picture that has the letter you want to teach. The word is written below. The child sees the picture and calls its name. Help the child to pronounce the word correctly. When the child pronounces the word, stop him on the very first sound and tell him that this is the same letter he is speaking.

Here the teacher must not pronounce any letter. Children themselves will pronounce the word using pictures. Knowledge of letter and pronunciation given thus establishes the correct form in the very first instance.

Further, the knowledge of consonants and vowels should not be serialized (the usual traditional method). They should be taught in an irregular sequence. For teaching *Matra* of different kinds (*o, aa, e, ee*), the students should be asked to open their mouths appropriately when this particular vowel is pronounced and then asked to pronounce the consonant. That automatically produces the Hindi letter correctly. Giving such exercises for a couple of minutes helps the students to learn the sound.

Dictation

It has been a long tradition to give dictation to students. The teacher introduced five new words in the dictation exercise. But has anybody ever thought how teachers should select five new words from the numerous words in Hindi? The second tradition is that of making a child write the same word several times when he makes a mistake in writing it for the first time. Can any teacher guarantee that after making the child write the word a certain number of times, he will not make the mistake again? "*Shruti lekhan*", the Hindi for dictation, means hear and write. Hear the sound and write. It is obvious here that if the sound is not correct, the writing will be faulty. No word should be involved in dictation with which the students are not familiar. General mistakes should not be corrected after the dictation. Instead of mute reading by children and ideal reading by the teacher, those words to be taught to students should be written on the board, and the students given knowledge of the correct pronunciation. This should be followed up by pronunciation and writing exercises.

The second strategy is to teach not many words from a group having similar formation, but to teach just one

word from that group and facilitate learning on the part of the students. If a child makes a mistake in writing that one word, the mistake must be corrected at that very moment. He must not be asked to write it again and again, but drawn to the particular place where he made the mistake. He is helped to correct the mistake. This way the child learns all the words of that kind and the chances of making mistakes are eliminated. Suppose a teacher wants to teach forms of simple words. He wants to teach all the consonants and 11 *matras* of Hindi.

Rule 1: every letter is pronounced from a particular place in the mouth. Ask child to remain in that position and pronounce the vowel *A* (as in *Amar*). This automatically produces the complete sound, a combination of consonant and vowel. (In Hindi, every consonant is an incomplete sound until one of the *matra*, basically a vowel, is united with it to make a complete sound. This is the difference between pronouncing a complete sound and trying to call out an incomplete consonant.)

Rule 2: In a given word, whatever *matra* is used, the sound should be produced in the same manner in which the *matra* is spoken. This automatically produces the correct sound.

Teaching Anuswar with its Variations

In Hindi, *anuswar* is produced in five sounds. However, while writing, instead of writing any of these five consonants, just placing an *anuswar* makes it correct writing. However, in dictation, it should be written the way it is spoken.

Chandra Bindu

This is half of the *anuswar*. While speaking it, the breath comes out from the nasal cavity. In this situation, it should be understood that the air is exhaled from the nasal cavity and there is a *chandra bindu* on the word. For e.g. *Aankh*, *kanta*, *chanta*, *fansa*.

Visarg

In *visarg* two dots similar to a colon are placed after the word, which produces *ha*, like *pratah*, *punah*. Here the students are told that at the end of the word, a half *ha* is never written. If needed, two dots like a colon are placed against it.

Teaching only six points for difficult words. The following table may be of help to teachers.

1	2	3	4	5	6
Bandar	Anyay	Chatte	Bachhiyan	Karma	Kram
Pakka	Abhyas	Laddu	Pattiyan	Dharma	Bhram
Rasta	Kalyan	Vidya	Makhiyan	Charma	Prem
Bachche	Pratyek	Mitti	Chakkiyan	Farma	Frem(frame)
Achchha	Lagya	Lattha	Paschim	Surya	Chakra

Column 1

Rule: in the middle of the word, the half letter should be pronounced with the previous letter to produce the correct pronunciation. For e.g. *ban/dar*, *pak/ka*, *ach/chhe* and so on.

Column 2

Rule: if the incomplete sound is followed by *ya*, it should be pronounced with the following sound, instead of the previous sound. E.g. *a/nya/ya*, *a/bhya/s*, *ka/lya/n*.

Column 3

Rule: for whichever letter use of half form is not available, that particular letter is used with a *halant*. The half form of a letter is never written at the end of the word. If needed, the last letter's leg is broken (making it *halant*) and it becomes correct writing.

Column 4

Rule: children often put the *matra* in such words between the half letter and the complete letter with which the half letter is originally supposed to unite. In order to overcome this mistake, we just need to explain that by doing so, we make the incomplete letter a complete one and it is a mistake. This explains the concept to students very well and such a mistake is not repeated.

Column 5

Rule: while pronouncing the word, our tongue rises upward with a stir. The teacher needs to explain that when the tongue stirs like this and moves upward, the sound *ra* falls on the next letter.

Column 6

Rule: here *Ra* is spoken along with the letter. Hence, it should be used in the same letter. E.g. *kram*, *chakra*, *parlay*.

What is a Language?

We give every sound a specific symbol and thus recognise it. When we read something, in fact, we are decoding the

sounds that we have memorized with the help of that picture. If a person is not familiar with the pictures of a language, he will not be able to understand it or speak it. In short, what we call a language is only an arrangement of sounds. Anyone who has decided to teach or learn has to have a knowledge of the sounds of the language. Every sound of Hindi has its own form and no two sounds are alike. There is a "way" in which the sound is created in the mouth. Providing knowledge of such formation of sounds is the key challenge. Some of what I have used in my work is presented below so that teachers can use it or adapt it for their purposes. From this, I have produced a table which can relate the work of two organs working together and the sound that is produced.

Consonants of Hindi

Ka, kha, ga, gha, anga

When we speak *ka, kha, ga, gha*, the back portion of the tongue rises upward. The nasal cavity is blocked so that the air does not pass through it. The sound is produced in the larynx. Therefore, these sounds are called *kanthya* sounds. They are collectively called *Ka* group sounds also. When we speak *anga*, the uvula hangs downward and the mouth will open for the air to pass. Both the mouth and nose will open.

Cha, chha, ja, za, jha

When we speak these sounds, the tip of the tongue touches the hard palate and when the air passes through it, it creates some friction. This produces such sounds. In the same situation, when the uvula hangs downward, the last sound *jha* is produced. The tongue will go towards the hard palate, but will not produce friction and remain away from the palate.

Ta, tha, da, dha, na

When we speak such sounds, the tongue rises. But instead of the palate, it touches the ridges of the upper teeth. Therefore, these sounds are called *Dantya* sounds, also collectively known as *Ta* sounds. While speaking these sounds, the nasal cavity is blocked. However, while speaking *na* both ways are open.

Ta, tha, da, dha, na (this is not a repeat, but is a second series of consonants. The earlier one is illustrated by words like *tapeli, thali, dado, dhaja* while this one—harder sounds—is illustrated by *tapali, thaliyo, damaru, dhagalo* and so on).

When we speak these sounds, the front part of the tongue touches the soft palate. The tip of the tongue also rises upward. Here also the uvula blocks the nasal passage. When the *na* sound is produced, it opens up the passage.

Pa, fa, ba, bha, ma

When we produce these sounds, both upper and lower lips move in each other's directions. The lips meet first and then separate. Due to this, the air is released with a pressure or push. The uvula moves upward and blocks the nasal passage. When the uvula hangs down, both the passages of the mouth and the nose will fall open for the air to pass through, and the sound is produced.

Sa, la, sha, sha (first *sha* is that of *sharan* and the second is that of *shatkon*)

When the front part of the tongue rises and touches the hard palate and remains engaged till the air passes through side passages, sounds like *sa, la* are produced. When the front of the tongues touches the hard palate and *a* is produced with a whistle, the sound *sha* is produced.

I have been teaching in primary schools since 1987. For the first eight years, I taught in many schools, where I focused on community development and building relationships with the community, school beautification, and improving children's writing. Here I describe two of my activities, which I consider to be innovative.

Friend School

When I was promoted as a CRC Coordinator, I had to visit each and every school of our centre. It was during such visits that I realised that in the same centre, one school was not aware of what the other school was doing. The teachers of different schools did meet one another, but they never had the inclination to share their views and activities. Two VECs or Mothers' Groups (MG), with the same problem, never met. This lack of communication made me uncomfortable. I felt that if friendship between two nearby schools could be developed, it would cultivate relationships between two VECs, Mother Groups and the *Panchayats* as well. The teachers and students would also benefit through exchange of educational views and activities. Thus, the stage for implementing the idea of a "Friend School" was born. The idea came to me suddenly while I was working on another activity called *Gramyaman Pathdan*, in which I found teachers worked together with a friendly and caring approach.

The primary objective of this innovation is to establish sound relationships between two or more nearby schools, their VECs, Mothers' Groups and teachers and students. The Student Government is an important aspect of our schools. The idea was also to share with other Student Governments how school affairs are being governed, what role the governments play in academic improvement, and how they can create and maintain a network with the community members. When a particular school is known to be a good or a successful school, what are the factors that contribute to its making? What is the exact role of the

community in achieving this grace? When such aspects are shared with the other (friend) school, the latter can have a benchmark to work towards. After presenting my idea to the people, I decided to implement it. Two criteria were important: the two schools should be near each other; the Student Government members should be supported by the VEC and MG.

For the pilot testing, we chose two schools, Tengabari Primary School and Chaudhurypara Primary School. The representatives of the first school wrote a letter to the representatives of the other school. The Cultural Minister took the letter and met his counterpart and some representatives from the community. In order to mark this meeting with a special gift, a compilation of educationally useful items like stories, songs, quiz, stories of great personalities, jokes, was made and presented to the village. A gathering was then held at the host school. Here the student representatives of the Tengabari school informed the students of Chaudhurypara school about the idea of Friend School and formally offered their friendship by handing over the letter and the gift prepared for the host school. The VEC members and teachers also gave brief talks on the idea of the Friend School. While leaving, the visiting students invited the hosts to their school.

Now the Chaudhurypara School came for a visit to Tengabari School on a pre-determined date. The group included the students, the teachers, and members of the VEC, the MG and the SMC. The representatives of the host school welcomed them. Both the partners jointly participated in the gathering that followed. The students and the community members of both the schools declared their friendship according to the Assamese tradition. This was merely the beginning of the friendship.

Then I followed it up—once the formality of offering and accepting the friendship was accomplished, documentation of the happenings began. Exchange of stories, games and other educationally important items became a regular feature.

The major outcomes of this innovation are:

- ❶ The bond between the schools became strong. The communication between the students of both the schools happens on its own and exchanges of educational activities are common.
- ❷ The members of the VECs, the MGs and the SMCs also meet to share their views. Their scope has widened in the sense that their concern now extends to the friend school. They now think as one group and work as one group.
- ❸ Different kinds of competitions are organised between the two schools.
- ❹ During the visit, the host children take the guest children for a walk in the village. Thus, the guest children come to know about the history, geography and culture of the other village.
- ❺ Remarkably, both schools have initiated exchange of TLMs. This is important because with meagre resources, better results are possible.
- ❻ The teachers of one school are motivated to teach in the other school.

Every month a meeting is held for the students of both the schools. The schools take turns to host. During such meetings, if it is found that students of one school are facing some problem in a particular subject or a particular unit, a teacher from the other school comes and teaches the problem item to the students of the friend school. The same spirit has helped in attaining 100% attendance, and both the schools are now eligible for an 'A' rank. Besides this, both the schools indulge in healthy competition.

With the passage of time, some need-based changes had to be made. If one of the friend schools is significantly weaker, the stronger school is motivated to help the weaker one by asking its teachers to take additional classes. The community agencies participating in the 'friend schools' have expanded their activity scope from just handling academic problems to resolving social and economic problems. DPEP and SSA have played a crucial role in helping me spread the idea. As a result, many centres in Assam have adopted the idea. The first replication was done by Mrs. Parmesh Das, the HM of Goaljihare Primary School, Goalpara district.

"Mobile Teaching Abhijan" for Weak Multi-grade Schools

In single or two-teacher schools (multi-grade schools) there are many well known problems. These made me implement

the process of mobile teaching by resourceful teachers. We first discussed the idea in one of my monthly teachers' meetings. With the permission of the authorities, I identified the weak teachers and the resourceful teachers as well as the multi-grade weak schools and the nearest good mono-grade schools. Accordingly, an action plan was prepared for the implementation of the mobile teaching *abhijan* in which the resourceful teachers of the mono grade schools had to take classes in the nearest multi-grade weak school twice a week.

Eighteen resourceful teachers were selected and they started to take classes using their own action plan scheme books, lesson notes and TLMs. However, it was decided to give more emphasis to the following points:

- ❶ Joyful, child centric and activity based learning.
- ❷ Competency based learning.
- ❸ Active participation of all the students during classroom transaction.
- ❹ Effective use of TLM.
- ❺ Classroom decoration and use of monitor students.
- ❻ Attendance of the students.
- ❼ Infrastructure of the classroom.
- ❽ Guardians' / parents' awareness regarding nursing of their child.

After completion of the class, the teachers of the weaker school had to submit their observation notes. The resourceful teachers also submitted their own reports. These notes were the basis for discussion, and remedial teaching action plans, during the monthly teachers' meetings.

The mobile teaching *abhijan* has had the following specific achievements.

- ❶ Weak schools like those in tea gardens and in remote areas benefited.
- ❷ All the teachers and parents had to collectively prepare and forward an action plan.
- ❸ Friendship between the schools becomes more effective.
- ❹ More responsibility has been devolved to the local society and social organizations.
- ❺ Rationalization of teachers has become more effective.
- ❻ Weak teachers have themselves become resourceful.
- ❼ Student and teacher attendance has become regular.



RAM KUMAR VERMA

Wall Paper for Improving Writing

The background for my work is provided by the emphasis on child-centred education, and the need to make the process of teaching and learning 'joyful' for the child. During interaction with children, teachers identify many obstacles to learning. As a result they try to change the way in which education takes place—changes in the medium, the environment, the place or the process help. But trying to bring about some change in oneself is more important, and this marks the beginning of innovation.

One problem I faced was the genuine lack of an ability to write among my students. There is a clear mismatch between the competencies specified for the primary level and the actual writing abilities of children. Apart from the basic competencies of recognising and writing vowels, consonants and conjoint letters, writing simple descriptive sentences, writing to dictation using proper punctuation marks, composing brief essays with proper paragraphs and punctuation, and writing letters, are some of the more advanced skills that children are expected to demonstrate. Many children do not exhibit satisfactory levels of these competencies. However, I have found that sometimes children know the answers but are unable to express themselves correctly and adequately. Their writing abilities clearly need to be developed at an early stage; otherwise, the quality of education suffers and the difficulties get pushed upwards towards teachers at the higher stages of education.

The checklist I have used to understand the problem of poor writing ability has the following criteria:

1. Examination of study books of students for clarity of answers.
2. Students writing only those letters and sentences which the teacher has written on the blackboard.
3. Children being unable to write as much as they speak.
4. Inability to write dialogues which are developed by the teacher out of oral stories.

5. An inability to write simple things that are seen or heard.
6. A reliance on blackboard material for the exercises given in the lessons of Language textbooks.
7. Lack of interest in trying to write unknown words or sentences, or about incidents they have seen or heard.

The above observations inspired me to innovate in the area of writing.

Diwar Akhbar (Wallpaper): Developing Language Skills and Creativity

The idea of a "wallpaper", simply called *Diwar Akhbar*, was designed as a tool for developing the four inter-related skills of listening, speaking, reading and writing. Some of the basics were: making the wallpaper look like any daily, but only in its outward form; a focus on all the above four skills had to be maintained; the activity had to be a totally child-centred activity and joy-giving; children should not be conscious about what competencies they are developing while being engaged in the activity; the entire work had to be a group activity, so that no child felt the burden of the activity.

Previously the children used to casually note the incidents taking place around them. They never discussed them with anyone. But when they were involved in the writing of wallpaper, they started to discuss these incidents with the editorial team and began to write as well. Given the drawback noted earlier of inability to write unfamiliar words, some began to make pictures or cartoons related to the incidents. This activity started automatically, once the medium was made available. With some guidance from the teacher at this point, students started to attempt to write on their own. This was the first step in developing language competencies. Apart from the objectives of the teacher, the wallpaper may have just played the role of nourishing and nurturing the creativity of children.

What is a wallpaper?

The simplest meaning of a wallpaper is a newspaper put on the wall. The usual newspaper is far removed from the world of children. Some do have space for very young children, but assume a certain level of language skills. The experiment under discussion helped to take care of the 'news' of the children's immediate (and relevant) world. With whom will they share the things they have witnessed? Where will they write their feelings? Where will they display their pictures and cartoons? The 'wallpaper' fortunately provided an answer to these questions.

Children first bring 'news' items. Then they discuss these items amongst themselves. The editors (some of the children) then write an editorial. Others add stories, songs, jokes, puzzles, pictures, cartoons and quotations. The children then check each other's writings, and if they spot mistakes, correct them.

A variety of material is used in the wallpaper—ranging from recycled old newspaper to drawing sheets. Pictures may be drawn or collected from elsewhere and pasted. All these add up to the identity of an 'independent' newspaper.

The wallpaper is hung on the wall or pasted at a height and at a place that are convenient for children. The height is such that children are able to read easily by following the words with their index fingers. The writing is also large sized.

A learning experience for the teacher

The wallpaper is a source of learning for a teacher also. When a teacher is trying, through the wallpaper, to inspire children to enhance their language skills on their own, he himself enters a new world of knowledge. When a teacher sees the children fully active in the process of making the wallpaper, the teacher tries to add something new to it. He is forced to bring something new from his own resources, but his knowledge base also increases. It is a source of satisfaction for him. And above all, the learning process becomes interesting for both the teacher and the taught.

The gradual development of the innovation

Before implementing this innovation, I discussed the idea with many educational experts. The gradual development of the innovation is described below.

First, before showing or telling other teachers and children about the concept of a wallpaper, I myself published a wallpaper. This was a trial, which helped clarify the concept and identify all the requirements for a regular venture. Then one day, I asked children to bring any news around them, songs and pictures they liked, or cartoons drawn by them.

The next day, in the very first period, many children deposited their writings, pictures and articles. With the help of four children, I pasted them up, wrote an editorial and asked children to give the wallpaper a name. Immediately they said "Children's Times". I agreed. The wallpaper was now ready and I kept it at the place where the school gathered for prayers. Children began to read it with attention.

Formation of the Editorial Team

An editorial team of 10 students was formed. One of the students was called editor, and the others were called reporters. Their roles were worked out. It took them two publications to gain the necessary confidence. I did provide guidance during this period. Later on it took the team about 15 days to put together one edition. The innovation developed along with the confidence of the children. From the initial active involvement of only ten students, many more children now are actively involved so that all the children in the school participate in some way or other.

Exhibition for Teachers

The wallpapers prepared by students were then presented as an exhibition to which the teachers were invited. This meeting served to evaluate the results of the activity in the light of the original objective of developing language skills. All the teachers were impressed with the writing skills that the children were able to exhibit; the teachers especially noted that those students who were unable to answer questions in the classroom were writing "very responsibly". This was not an anticipated result, since the wallpaper was specifically expected to help those children identified as unable to write what they could answer well orally. Everyone assessed the wallpaper as an entertaining way of developing language skills.

Exhibitions in other Schools

Once I saw improvement in the language skills, I spoke to teachers of other schools and exhibited the wallpapers in their schools. It provoked a lot of interest, and made children read the wallpapers for long periods of time. Some of the teachers communicated to me that their children had shown extraordinary interest. In these schools, we formed editorial teams of children, and they began to publish the wallpaper regularly.

Workshop for Children

Seeing the continuous involvement of children over time, I thought of organising a workshop at the town level for children. I took the help of Janshala, a programme run for quality improvement in primary education. The State Coordinator Shri D.N.Sharma helped in calling 200 children from the town of Bhilai to the workshop. The workshop was organised in February 2002 and over a two-day period, the enthusiastic participation of the children resulted in the production of about 40 wallpapers. These were displayed towards the end of the workshop.

Workshop for Teachers

This workshop then led to a district-level workshop for teachers. The focus of the workshop was on sharing information about the processes involved in wallpaper production, techniques to maintain the children's participation, and observing and tracking the outcomes of the activity. The workshop seemed to be successful, since many teachers tried out this idea to develop language skills on their return to their own schools.

Special Workshop

After the feedback of this workshop was analyzed, I decided to organise a special workshop for eight schools located in the habitations of labourers. The problem here was that the children in the same locality spoke a variety of languages, but the medium of teaching was Hindi. Teachers in these schools faced very special difficulties for which they were not well equipped. In the heterogeneous language environment in which the children found themselves, the

wallpaper offered a medium to combine home languages with speaking and writing skills in the standard language. The workshop, held in February 2003, focussed on the teachers and 320 children. This initiative is still developing, and the initial results have been positive.

In summary, the following steps are now taken, keeping in view the objectives noted earlier.

- ① Discussion of the wallpaper idea with teachers and head teachers (if present) as a tool to develop language skills.
- ① Formation of an editorial team in the school.
- ① Training for the wallpaper in a special workshop.
- ① Discussion on methods of writing suitable for a wallpaper.
- ① Discussion among the teachers on the utility and the benefits.
- ① One teacher is made a *Prabhari* and another a *Prerak* in each school.
- ① Constant contact with the trained teachers and the children.
- ① The children of Class III, IV and V, on the basis of their interest, are constituted into wallpaper teams (to handle the responsibility for production).
- ① The wallpaper has to be published at least every 15 days, and it should be kept in a convenient place so that readability is ensured.
- ① The wallpapers are to be preserved, and the compilation taken to a district level competition for selecting the best wallpaper.
- ① Finally, an assessment of the improvement in the language skills of children, to be carried out by the teachers.

Assessment of the Success of the Innovation

The participating children have been observed to be willing to learn under any circumstances; the only conditions my initiative imposed were that collective efforts should be visible, and the efforts should lead to learning activities. Of course, the children have to be given sketch pens, drawing sheets, old newspapers and other material, and sufficient time for writing. My preliminary objective has been achieved. The other criteria on which an assessment was made are the following.

- ④ Degree of original writing by the children and the exposure of the other children to it.
- ④ Levels of discussion among the children.
- ④ Extension of group work habits to learning in general.
- ④ Development of a sense of responsibility and coordination skills.
- ④ Reduction of errors in classroom writing.
- ④ Movement towards the standard form of the language (wherever applicable).
- ④ Reflection of the sensitization of students about the happenings around them.
- ④ Retention of children in school (even though not directly attributable to the wallpaper).
- ④ Creation of groups of active children.
- ④ Development of an ability to express oneself.
- ④ Developing the willingness and ability to write unfamiliar words and sentences.

Present Status of the Innovation

- ④ The teachers meet at training sessions to discuss the progress of the wallpaper activity.
- ④ In some schools, a blackboard has been made on the outer wall of the building, and children use this as a medium.
- ④ Wallpaper production is also done in *Bal Melas*.
- ④ The editorial teams are contacted regularly for motivation and guidance.
- ④ In many schools of the district, the wallpapers have evolved into handwritten magazines.
- ④ The creativity shown as a result of the wallpaper now gets reflected in other activities in the school.

What should form the content of a Wallpaper?

For making the wallpaper multipurpose, it should include interesting material: Interesting news, editorials, news of the school/ street/ village, cartoons/ satire or comic poems, jokes/ puzzles and quotations, stories and folklore, original writings of the children, word puzzles/ crosswords, weekly or monthly songs, news about the planning or celebration of festivals in that particular month, pictures, news of problems and their solutions, brief information on the talents of specific children, news based on science

What should be kept in mind while writing?

- ④ The handwriting should be good
- ④ Spacing between words and sentences should be generous, but appropriate
- ④ The news should be presented in simple sentences
- ④ The content should be aimed at developing writing skills
- ④ Proper punctuation marks should be used
- ④ Writing should be done in spaces specified for the writing
- ④ Names of writers/ reporters should be mentioned.

Some of the 'news' items about which children have written

- ④ A video show was going on near our house. A boy came there, saw a piece of iron and tried to take it. It had a live electricity connection. The boy died of electrocution.
- ④ Last week, near my house, a man fought with his family members and left his home. He then never came back. Why?
- ④ A boy went to a girl's house and he put sindoor on the girl's head. When the girl's brother came to know about this, he beat up the boy severely. The girl's parents filed a police report. Police came and arrested the boys.

Child-editors write:

- ④ It was fun to draw and write news. It felt very good to write with my classmates.
- ④ I like the wallpaper very much. When we grow up, those of us who draw well can become painters and those who write well can become writers.
- ④ We were told to write about the incidents around our house. First I thought about what I wanted to write. Then, when I started writing a letter, I wrote a complete letter.

Educational experiments like these have serious aims, but they do involve a lot of fun and give joy to the children and the teachers. Ultimately, children have to learn somehow, and anything that is novel and well designed is an appropriate tool.

Girls are often made to stay back at home for domestic duties like sweeping, mopping, cooking, looking after young siblings, grazing animals, or for collecting papers and plastic bags from the streets. Pained by this, I was inspired to do something.

Development of an Idea

1. With the help of maternity homes, midwives of the village, officers issuing birth certificates, girls studying in *Anganwadis* and schools, I maintained details of all the girls born in the village.
2. I sent personal birthday greetings and good wishes on their birthdays.
3. Birthday cards were made and these cards and gifts were given on behalf of the school children. This improved my relationships with the parents and the community.

The enrolment process begins with a survey of the girls not going to the school conducted in the months of April, July and August. Then an 'enrolment fair' is organised, where discussions with the villagers are held. Every girl beyond four years of age is enrolled in the nursery. Then contacts are maintained with the *Anganwadi*. When a girl attains five years age, I visit her at her home and enroll her in the school. Thus no girl remains out of school. Every month, the second Saturday is set aside for a meeting of the guardians. As a parallel activity, the school going children are asked to bring names of girls not studying anywhere. Children who do so are given prizes and certificates. The result of these efforts has been 100%.

Measures Taken for Preventing Dropout at Class V

The first thing to be done is to make parents aware that a new enrolment in the upper primary school has to be done. Some parents do not know about this. We also tell them

how to do it in a new village, since many of the girls migrate. We bring the HM of the upper primary into the picture. In the last week of February, a list of girls studying in Class V in the lower primary school is sent to the HM of the upper primary school. This gives him an idea of how many girls should be enrolled in the school the following year. The HM then organises a meeting with the guardians of the Class V students in March. The objective of this meeting is to make sure through dialogue with the guardians that none of the Class V girls is deprived of enrolment in the upper primary section. After the entire process is over, the HM reviews the records to make sure that all the girls who have passed Class V are accounted for.

Handwriting

From the autobiography of Mahatma Gandhi, I came to know that he regretted his bad handwriting. I felt that the students studying with me should not have such regrets. For teaching the entire *Varnmala* (alphabet), I have relied on the traditional method of practice makes perfect. Children are given coloured chalk sticks, broken into pieces, for practice. Then the vowel sound writing is taught. Finally using ruled paper, practice in adhering to the lines is given.

Competitions for good handwriting at the school level are organised on festivals like the Republic Day, the Independence Day, *Gandhi Jayanti*. The parents, retired teachers and the HM are involved in the evaluation process and the winners are given prizes in the presence of respected people. Some social workers began to give prizes to the winners of the good handwriting competitions. Such prizes took the form of stationery or cash. Between 1998 and 2003, on an average, an amount of Rs.3500 has been distributed to about 20 students every year. This competition has had a particularly good impact on girls. Such activities contribute to keeping the children, especially the girls, in school.

I describe here only one of my activities, a project titled "My India" which is a play way method for teaching Class IV of my school. The objective was to illustrate national integration. To learn about each other, to know the neighbouring states, their culture, languages and traditions, children should develop interest in knowing about the variety in our country. The activity also helps in the cognitive and motor development of the children. The several play activities can be carried out on a playground. The teacher can draw the map of India on the ground. He can point out the boundaries of the States. Groups of students participate in this activity. The Social study book of Class IV was the base for this experiment. The number of students in my class was 32. Of them six students were regularly absent. I ignored them initially. The rest of the students were divided into two groups of 13 each. I exposed only one group to the new activity, and let the other group function as a control group.

The teacher first directs the students to stand on the boundary of the map of India. The teacher then gives sufficient information about the states of India. The teacher says "Ham sab" (all of us), students say "Bhai Bhai" (Brother Brother), the teacher says "Anek Bhasa Anek Besh" (Many languages, Many costumes), the students say "Phir Bhi Hamara Ek Desh" (Still our country is one), the teacher says "Delhi Ho ya Guwahati", the students say "Apana Desh, Apana Mati" (Our Country, Our soil). Finally, the teacher says "Bande" and the students respond with "Mataram".

Then the teacher calls out the name of a state; the students have to break their lines, and come within the boundary of that state. While running, they have to recite patriotic slogans. Those who get inside the particular state first are winners and are able to participate in the play

further. Those who are not able to come inside the state are not eligible to play. The last child who is able to stand inside a specific state is announced the "Best Child of India". In this way the children can remember the names of all the states of India.

The teacher then gives information about places worth seeing in various states, state capitals and names of rivers in the states, the sources and destinations of the rivers and places through which they flow. Students then once again run and stand anywhere on the boundary of India. When the teacher names a place in a particular state, the students run to that particular state. When the teacher says the name of a river and where it flows, the students go to those states through which the river flows. The number of states could be more than one. Finally, the winner is the one who remains.

The teacher tells the students to stand on the boundary of India. The teacher gives them information about poets, philosophers, scientists, and patriots from a particular state. The play continues according to the same rules. Then the teacher gives information to the students about different dances of India like Kuchipudi, Bharatnatyam, Kathak, Odissi, Kathakali, Manipuri through this play activity, and the game is repeated.

The same pattern is repeated for important festivals (national or regional like the Jagannath car festival of Orissa), airports, industry, ports, mines etc. I found that the students who undertook this activity learned with much interest, and did better in a social studies test. The pattern of the test included naming the states in which some monuments were situated, matching dances or people with their states, and drawing the shapes of states.

Appendices

IV

Appendix A: Methodological Procedures

For purposes of this project, an innovation has been understood to mean an educational practice (method, learning tool or aid, or set of actions) which has actually been tried in practice and has achieved certain educational goals that the teacher had in his or her specific socio-economic context. These goals have to be in consonance with the goals of universalisation of primary and elementary education. "Effectiveness" has been understood to mean that the innovation resulted in identifiable positive improvement in accordance with the educational objectives of the teacher. The criteria used for screening were: novelty in the activity mentioned by the teacher, the context in which the activity was performed (varying levels of difficulty arising out of the school's history, and the socio-economic status of the village), the "scope" of any single activity in terms of the number of aspects which would be affected/ number of children benefiting, the complexity of the activity, the number of innovations made by the teacher, the origin of the idea and the spread effect of the teacher's work.

The task of scouting around was undertaken with the help of people working in the government and individual teachers, some NGOs, teachers' federations in one state, and other individuals interested in such work. The initial phase of the scouting was characterised by network building—identifying partners who could join this task. Many DPEP offices and departments of education, some State Councils of Educational Research and Training, and a few colleges were contacted with information on the objectives of the project. Very importantly, some of the teachers who had been involved in similar work with the IIMA in the mid-1990s helped. The initial response of some of the state departments will help in the second year of the project. For instance, the departments/ SCERTs in Tamil Nadu, Maharashtra, Gujarat and Assam have passed on the information to their lower levels in various ways. In

Rajasthan some DIETs have evinced interest. The Department of Adult Education of North Maharashtra University, Jalgaon was particularly helpful. Some NGOs in Kerala and Pondicherry managed to identify some outstanding teachers.

Finally, about 700 nominations were accepted. These were screened for further exploration. This screening was undertaken by teacher panels; most of the work was done by Shri Motibhai Nayak, Shri Gunwant Patel, Shri Suresh Joshi, Shri Manjibhai Prajapati, Shri Baldevbhai Suthar, and Shri Bipinchandra Rawal. A substantial amount of time was spent in translating various submissions into English or Hindi and in checking the accuracy of the translation. The local partners played a key role in this process. The DTERT, Government of Tamil Nadu, through one of its faculty members, Shri Jeya Inbaraj, has initiated an extensive exercise which will be helpful in the second year. The work of the short-listed teachers was validated through visits and a series of workshops called teacher-writing workshops. This forum was extremely useful since the teachers had to answer questions put by the other teachers or by experts. Many gaps in the teachers' information were filled; and cross-questioning was perhaps the most useful way of understanding the teachers' work. The assessments made at the screening and the validation stages were the basis for the final selection of fifty eight teachers. Since the focus was on Gujarat and Maharashtra, 42 are from these two states: 30 from Gujarat and 12 from Maharashtra. Five of the 58 teachers belong to Madhya Pradesh, three to Kerala, two to Rajasthan and two to Pondicherry. There is one teacher each from Assam, Delhi, Chattisgarh and Orissa.

Appendix B: Brief Report on the First Sir Ratan Tata Trust Educational Innovations Conference

The First Sir Ratan Tata Trust Educational Innovations Conference was organised on December 21-22, 2004, at

the Gujarat Council of Educational Research and Training, Gandhinagar. Fifty eight teachers selected in the first round, and 15 partners were invited. The guest speakers were the Honourable Education Minister, Government of Gujarat, Smt. Anandiben Patel, the Chief Secretary Shri P. K. Laheri, the Education Secretary, Shri P. Paneervel, and Prof. Anil Gupta, KL Chair of Entrepreneurship, IIMA. Women teachers were provided with additional funds to bring one companion along with them. The conference was conducted by the Gujarat Council of Educational Research and Training, on its new premises. Since the hostel building was not ready, arrangements for the participants' lodging were made outside the GCERT campus, in various hostels. The conference had four components: the inauguration, presentations by the teachers, exhibition of the visuals related to the teachers' work and open discussion.

The Education Minister of Gujarat began her career as a school teacher, and was especially interested in the work of the selected teachers. The participation of the top levels of the bureaucracy served to bring innovative and isolated efforts at the grassroots to the notice of policy makers. The participation of Prof. Anil Gupta as a guest speaker served to highlight the need to mainstream grassroots-level innovations. The role of the selected teachers in building a network that might include like-minded teachers was emphasised. The exhibition served to expose the teachers to the work done by the others in very difficult contexts. Local teachers from Gujarat helped those from outside the state in displaying the material they had brought with them.

The teacher presentations were divided into four parts based on the nature of their work, the state they belonged

to and the outline that they had sent beforehand. Some of the teachers were given an opportunity to demonstrate the videocassettes and CDs they had brought. Many of the presentations were recorded on video.

The partners' response was encouraging. The President and Secretary of the Rajasthan Teachers' Federation (though they were not partners in the first year) attended, and the Secretary of the Madhya Pradesh Shikshak Parishad was also present. The partners from the North Maharashtra University, DTERT Tamil Nadu, Assam and Gujarat were also present. Unfortunately the NGO from Kerala could not attend. Of the 58 teachers included here, one teacher, Smt. Divya Bhatt passed away before the conference; one teacher was very ill and three others were unable to attend.

Fellowship forms were given to the teachers to collect information on how they planned to use the Rs.3000 fellowship and mention their bank details. Demand drafts of Rs.3000 were sent to 56 teachers after the conference; the teacher who was ill was unable to accept the fellowship.

Appendix C: Use of the Fellowships Granted to the Teachers

Forty four teachers have reported on the use of the fellowship granted to them. The others are still in the process of either completing their activities or reporting. Twenty four teachers have used the fellowships to build on their earlier work or to develop activities relevant to their earlier work. Nine teachers have used the amounts to work on ideas based on their learning from the other teachers' presentations during the conference, and eleven have used the money for entirely new activities.

	Name	Use of the fellowship
1	Sunilkumar S. Bhatt	Has organised a series of meetings for educational awareness, which included cultural programmes. A part of the grant has been used to train the children in making articles like candles, incense sticks, chalk sticks, and toys of plaster of paris.
2	Bhavesh R. Dadhaniya	Has used a part of the grant to buy educational song audiocassettes for the children, and with the rest, has carried out "100 activities". These include, cleanliness drive, supplementing a de-addiction drive, celebrating a child's birthday, supporting a children's magazine (which is distributed to other schools), organising a quiz competition, getting cleanliness cards made, making an attendance flag, compiling games for EVS.
3	Ushaben J. Daki	Has prepared 'identity cards' (for information about the students), and developed infrastructure for sports: preparing a patch of ground for 'high jump' and volleyball. With the remaining amount has made masks for role plays/dramas used to teach specific lessons.
4	Rameshbhai A. Dhodakia	Has helped his children participate in an educational fair organised by a private trust; the theme taken up by Shri Dhodakia was 'District Jamnagar'. Has also written a compilation of the descriptions of local games, and has prepared pamphlets on this for distribution in <i>bal ramotsavs</i> .
5	Dhanrajgiri H. Goswami	Got good quality cards printed for admission, attendance, absence, identity (please refer to his case).
6	Nanjibhai J. Janjani	Has prepared a book "Puppetry in education", which explains the basics of making and using puppets. Has also brought out a compilation of various radio programmes and schedules, calling it 'Importance of radio in education'. With a part of the fellowship, has bought a radio-cum-cassette player for the school.
7	Harshadkumar R. Joshi	Has devised two circuit-based TLMs for math to make the question answer sessions and informal evaluation of learning about tables and divisible/indivisible numbers interesting.
8	Jayantilal D. Jotani	Has made TLM with the help of children, and has prepared several booklets with information about birds, animals, fruits, flowers and vehicles, for the children's use.
9	Prerna A. Mehta	Prepared a <i>Bal Mitra Varg</i> for Class IV.
10	Baldevbhai N. Pandya	Has prepared a comprehensive series of puppets based on the characters of the <i>Panch Tantra</i> and other folk stories.
11	Leelaben A. Parmar	Has taken up a project on ' <i>Fursad Shibir</i> ', with the initial focus being on sustaining girls' interest through activities like fabric painting and glass painting. Other activities like drawing, painting, <i>kho kho</i> , badminton, <i>kabaddi</i> and carom have been added.
12	Harjivandas V. Patel	Has implemented a handwriting improvement project for 60 selected students.
13	Jayeshbhai N. Patel	Bought material to prepare puppets for children of <i>Ashram shalas</i> of Valsad and Dang districts in Gujarat, where Shri Patel goes to teach voluntarily. Funds for this activity are not available elsewhere and so the grant has been useful. Some of the money was used to buy material for painting and drawing (colours, chart paper etc.) for use in these schools.

14	Kailashben M. Patel	Has supplemented the infrastructure in the school with plants, TLMs, garden development, and painting. The fellowship was also used as a seed grant to mobilise additional funds for these activities from a donor.
15	Karshanbhai J. Patel	Has implemented a project on establishing links with other children through post cards and a 'letter box' in the school for the children.
16	Rakeshbhai G. Patel	Has set up a music section in the school, with a tape recorder and musical instruments.
17	Ramanbhai G. Patel	Has used the fellowship for two projects: an action research project on children not coming to school on time, which included parental participation; making TLMs for Classes III to VII to teach difficult spellings (25 sets have been made and distributed to all the schools in the cluster). The small amount that remained was used to make other TLMs.
18	Shantilal N. Patel	Has developed a science laboratory; a small amount was spent on the school garden.
19	Sharmishthaben B. Patel	Has used a part of the grant to finance his ongoing development activities, specifically to buy uniforms and sweaters for needy children. Has used the rest of the fellowship to train some of the children to make candles, incense sticks, and toys from plaster of paris.
20	Ibrahimbhai B. Qureshi	Has prepared a series of TLMs to teach place value, addition, subtraction, and a variety of charts and pictures for geometry teaching.
21	Dharmeshbhai M. Ramanuj	Has brought out a compilation of prayers, <i>bhajans</i> , and children's songs that can be sung in the prayer assemblies, for 93 schools. Is in the process of using the remaining amount to prepare audiocassettes of the songs.
22	Shankarbhai M. Sendhav	Has made a comprehensive set of TLMs for history and language teaching for the children of Classes I to VII.
23	Nanubhai A. Tandel	Has set up a music section in the school with musical instruments like the harmonium and the <i>tabla</i> .
24	Manibhai R. Vaghela	Has channelled the fellowship into his and the school's community development initiatives, using the amount specifically for uniforms for needy children.
25	Rajesh M. Bankar	Has completed and printed a booklet of children's songs.
26	Ananta H. Baodhankar	Has established a library containing books on general knowledge and science, and English language learning material.
27	Yogesh K. Chaudhari	Has produced a VCD of the children's activities in the school. The rest of the money has been used to solve the problem of lack of material to teach English by buying ready made material.
28	Murlidhar K. Jadhav	A handbook for handwriting improvement has been produced. It has three parts: a teacher's handbook, a children's workbook and a handbook for the parents. This output of the grant is now being included as part of an M.Ed. dissertation Shri Jadhav is preparing.
29	Narendra B. Khairnar	Has prepared card sets on 50 topics, including flowers, animals, writers, actors, <i>Bharat Ratna</i> recipients, problems in India and their solutions, sources of inspiration for education. A part of the money has been used to laminate the cards and to prepare a storage box. The remaining amount has been used to organise an exhibition for the children.



30	Rahul D. Londhe	Has established a collection of wood sculptures, based on natural shapes found in nature, to be used as TLM.
31	Sulochana S. Salgar	Has developed the library, one of her innovations, with books and other reading material. The focus of the purchases has been on subject-related general knowledge.
32	Nilesh P. Shelke	Has prepared audiocassettes of folk songs recorded with the help of friends. The effort has been rated by Shri Shelke as an initial step but amateurish, and he has planned more professional recordings. A part of the grant was used to supplement children's sports kits (volleyball, footballs, chess sets). A radio, borrowing the idea from a conference presentation, has been added to the school.
33	Ramjan R. Tadv	Bought and distributed educational material (paper, pen, pencils, and uniforms) to identified poor tribal children, under his ongoing social development initiatives.
34	Gyaneshvar Dubey	Bought material to prepare puppets. Organised camps to teach children to prepare the puppets. The use of these puppets produced by the children, as teaching aids, has just started.
35	Bashir M. Khan	Bought calculators, instruments, a geometry box, globe, a clock, a blackboard, charts, and raw material for making TLMs in his school.
36	Kailash C. Pandey	Used the grant for the following purposes: Organised a tour for 45 children of his school to nearby historical places of Mandsaur district (refer to the note in Shri Pandey's case). Organised a test for general knowledge of history and geography for Class VIII-X students of 20 schools in which 400 students participated. Some money was spent on preparing a pamphlet on the test, and the rest was used to award prizes to the top three children of each school (Rs. 20, 10 and 5 for each school).
37	Subhash S. Yadav	Has made a variety of TLMs like the globe, and models of the solar system and mountain systems.
38	Laizamma V. Korah	Has used the grant to part-finance the production of the Malayalam language book for deaf students. The publication has been done and a copy is available. The grant has triggered off future plans to prepare a similar book for preschool children.
39	K. Ganesh	Set up eight experiments in his school's laboratory related to fluid mechanics and light. Developed an indigenous slide projector which, however, has not worked to his satisfaction.
40	S. Sriram	Has undertaken an action research project to improve handwriting in English. Some of the money was used to buy four-line notebooks for the 244 children who are participating in the project. The outcome will be evaluated by the teacher soon.
41	Rakesh Jain	Made TLMs for handwriting improvement.
42	Ramchandra Sharma	Has finalised and produced 25 copies of his guidelines for teaching pronunciation of Hindi. Has distributed the copies to nearby DIETs and other teachers.
43	Ramkumar S. Verma	Expanded his wall paper activity by using the grant to train other teachers. Collected the good work of the others and published it in children's magazines, <i>Bachpan</i> and <i>Bal Mitra</i>
44	Ramesh P. Patri	Implemented a project to involve shy/disinterested children of Classes IV and V by making them express their creativity in the classroom. Selected 30 such students and involved them in making puppets; the templates were provided and the children had to make puppets and use them.

To sum up, the teachers have used the fellowship to address very immediate problems. Furthering the activities of their interest, like preparing TL—often with the help of children (10 teachers), buying tools/gadgets, TLM /reading material for the school (8), preparing/publishing a book/compilations based on one's own work (7), buying or preparing material required to carry out a specific innovation or experiments (7), carrying out projects or action research (5), supplementing the physical infrastructure in their schools and using the money to mobilise additional grants (3), providing things to children as part of the teacher's or school's social development activities (3), buying material to teach children to make useful things (3) and organising community meetings for educational awareness (1), are some of the main activities.

Appendix D: Partner Institutions and Individuals

1. Department of Adult and Continuing Education, North Maharashtra University, Jalgaon, Maharashtra. Contact persons: Shri Shantaram Badgular and Shri Ramesh Mahajan.
2. District Education Office, Mangaldoi, Assam. Contact person: Shri Ratul Kumar Bora.
3. DTERT, Government of Tamil Nadu, Chennai. Contact person: Shri Jeya Inbaraj.
4. Gujarat Primary School Teachers' Federation. Contact person: Shri Dilipsinh Gohil.
5. Honey Bee Network. Contact person: Shri P. Vivekanandan, SEVA.
6. Madhya Pradesh Shikshak Parishad. Contact person: Shri Mohanlal Yadav.
7. Peermade Development Society, Idduki, Kerala. Contact person: Shri T. J. James.
8. Rajasthan Primary School Teachers' Federation (Sandhya), Rajasthan. Contact person: Shri Chauthmal Sanadhya and Smt. Yashoda Dashora. (Partner institution for the second year onwards.)
9. SRISTI, Ahmedabad. Contact person: Prof. Anil Gupta.
10. State Council of Educational Research and Training, Gujarat. Contact person: Dr. Nalin Pandit.
11. State Council of Educational Research and Training, Maharashtra. Contact person: Dr. M. G. Marathe.
12. SEVA, Pondicherry. Contact person: Shri P. Vivekanandan, SEVA.
13. Shri Manjibhai Prajapati, Primary school teacher, Gujarat.
14. Shri Motibhai Nayak, Primary school teacher, Gujarat.
15. Shri Bipinchandra Rawal, Primary school teacher, Gujarat.
16. Shri Gunvantbhai Patel, Primary school teacher, Gujarat.
17. Gandhinagar District Primary School Teachers Federation. Contact person: Shri Baldev Chaudhari.
18. Shri Baldevbhai Suthar, Primary school teacher, Gujarat.
19. Shri Suresh Joshi, Primary school teacher, Gujarat.

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Glossary

<i>Abhijan</i>	Movement
<i>Anand</i>	Joy
<i>Andhshradhha Nirmulan Samiti</i>	Committee to remove superstition
<i>Anganwadi</i>	Pre-school, nursery
<i>Ank</i>	Numbers
<i>Antakshari</i>	Game in which the ending syllable of a song is used as the starting syllable by the next participant
<i>Ashram Shala</i>	Residential school, usually in tribal areas
<i>Bal Mandir</i>	Pre-school
<i>Bal Mitra Varg</i>	Child-friendly room decorated with educational aids and attractive toys
<i>Bal Sabha</i>	Children's forum
<i>Bal Sanskar Kendra</i>	Informal group which organizes programmes/ activities for grooming young children
<i>Balwadi</i>	Pre-school
<i>Bhajan</i>	Religious/ spiritual songs
<i>Bhangra</i>	Punjabi folk dance
<i>Bharatiya Gyan Kasoti</i>	Name of a test
<i>Bharatnatyam</i>	Classical dance of Tamil Nadu
<i>Chappal</i>	Footwear
<i>Dhun</i>	Spiritual song, chant
<i>Garba</i>	Folk dance of Gujarat
<i>Ghazal</i>	Semi-classical song (light music)
<i>Gram panchayat</i>	Village administrative body
<i>Gram Rakshak Dal</i>	Village protection committee
<i>Gram sabha</i>	Village council
<i>Gram sevaks</i>	Village volunteers
<i>Gurudakshina</i>	A tradition of paying a debt to a teacher followed in traditional Indian education, and a term understood widely
<i>Gutkha</i>	A tobacco product
<i>Khatla Parishad</i>	Informal meetings conducted near the households
<i>Kirti geet, badbad geet, sfurti geet, desh bhakti geet</i>	Various types of children's songs
<i>Kumkum</i>	Vermilion, used by women on their foreheads
<i>Lok Mela</i>	People's fair
<i>Mahabharat</i>	Indian epic
<i>Mahant</i>	A priest looking after a temple
<i>Mahila Mandal</i>	Women's group or society
<i>Mahila Satsang Mandal</i>	Informal group of women gathering for religious activities like listening to epics, singing bhajans
<i>Mahotsav</i>	Grand celebration
<i>Malayalam Manorama</i>	A commercially published magazine in Malayalam language
<i>Manch</i>	Stage
<i>Matra</i>	Vowel symbol
<i>Mehandi</i>	Henna

Mukhi	Community head
Panch	Committee of elders
Panmasala	A tobacco product, with arecanut
Parishad	Committee, forum
Parivar	Literally family. Also used to refer to groups formed for specific purposes.
Prarthna Chowk	A place where people gather for prayer
Prasad	Offering to the gods
Prerak	Motivator
Ram Dukan	A shop run on trust without formal supervision of the monetary transactions
Rangoli	Decoration done at the door steps (generally with coloured sand or flour)
Ras	Gujarati folk dance
Sakhi	Companion
Sarpanch	Elected leader of gram panchayat
Satyanarayan Katha	Religious ritual connected with god Vishnu
Shabd	Word
Shabdakhajina	Collection of words
Shruti lekhan	Dictation
Swadhyay	Self learning. Also a well known spiritual/religious movement founded by Shri Pandurang Shastri Athavale.
Taal	Beat
Tabla and manjira	Musical instruments
Taluka	Block (sub-district)
Toran	Traditional garland made of leaves of trees considered auspicious, hung above doorways.
Van Mahotsav	Celebration of forest diversity
Vanbhojan	Community meal in a forest
Vande Mataram	Initial words of the Indian national song
Veni	Kind of small garland worn around hair
Vrund	Group
Zilla	District

Abbreviations

ADEI	Assistant District Educational Inspector
BRC	Block Resource Centre
CRC	Cluster Resource Centre
CRCC	Cluster Resource Centre Coordinator
DDO	District Development Officer
DIET	District Institute of Education and Training
DPEO	District Primary Education Officer
DPEP	District Primary Education Programme
HM	Head Master
MTA	Mother-Teacher Association
NCC	National Cadet Corps
NSS	National Service Scheme
PTA	Parent-Teacher Association
SCERT	State Council of Educational Research and Training
SSA	Sarva Shiksha Abhiyan
SUPW	Socially useful and productive work
TDO	Taluka Development Officer
TLM	Teaching Learning Materials
VEC	Village Education Committee

Conference Events



Teachers during a break



View of the dais



Teachers visiting TLM exhibition



Teacher explaining his TLM



Deep Pragatya by Honourable Education Minister, Gujarat, Smt. Anandiben Patel



Mr. Krishna Kumar Singh, SRTT



Mr. P. K. Laheri, Chief Secretary, Govt. of Gujarat



Teacher (Smt. Lilaben Parmar) with plaque



Prof. Anil Gupta, IIMA



Some exhibits



Conference in progress





Partner Institutions

Dept. of Adult and Continuing Education and Extension Services, NMU, Jalgaon
 DTERT, Chennai, Govt. of Tamil Nadu
 Gujarat Council of Educational Research and Training, Gandhinagar
 Madhya Pradesh Shikshak Parishad, Dhar
 Peermade Development Society, Idduki
 SEVA, Madurai
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